NAPPA
Legal Education Conference

Funding Policies in a Post-GASB World
New Rules and Emerging Guidance

Austin, Texas

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Paul Angelo, FSA

Segal Consulting

San Francisco

5367056v2

Renewed Focus on Funding Policy

- GASB Statements 67 and 68 make a clear separation between accounting cost (expense) and funding cost (contributions)
  - Contrast with Statements 25 and 27, where expense was the "ARC": Annual Required Contribution
- No longer look to GASB for funding policy guidelines
  - Not that we ever should have
  - 30 year amortization "out-of-bounds" marker interpreted as an acceptable place to live
- Resulting regulatory void inviting discussion

GASB and Funding Policy

- Under new GASB statements, funding policy has two roles
- "**Actuarially Determined (Employer) Contribution**"
  - If determined, disclose method and amount
  - Compare amount to actual contributions
  - No basis given except "actuarial standards of practice"
  - **"ADC" is the new ARC**, but not the new expense
- For "blended" discount rate, projected assets include future contributions
  - Consider any "formal, written policy related to employer contributions"
  - Encourages adoption of a legally binding and actuarially based funding policy

Renewed Focus on Funding Policy

- Starts with the governance issues
  - Independent determination of an "actuarially determined contribution"
    - Including actuarial assumptions and funding policy
  - **Legally enforceable contribution demand on employer**
    - If you are not going to fund it, it matters less how you measure it
- California provides a good model for both
  - Proposition 162 (1992)
  - "Retirement board … shall have the sole and exclusive power to provide for actuarial services …"
  - Almost all CA systems require actuarially determined contributions

Who will replace GASB's role defining, monitoring and enforcing acceptable funding policies?

- Actuarial organizations
  - Actuarial Standards Board - Actuarial Standards of Practice (ASOPs)
    - Revised ASOP 4 addresses some aspects of funding policy
  - Academy of Actuaries Public Plans Subcommittee
    - Issue Brief on Objectives and Principles issued Feb. 2014
  - Society of Actuaries "Blue Ribbon Panel Report", also Feb. 2014
  - Conference of Consulting Actuaries Public Plans Community (CCA PPC)
    - **Actuarial Funding Policies and Practices "White Paper" issued Oct. 2014**
    - Similar to earlier California Actuarial Advisory Panel (CAAP)

Who will replace GASB on funding policy?

- Actuarial organizations may develop model and/or acceptable practices, but not enforcement mechanism
  - May need more specificity than a typical ASOP
    - Actuarial Standards Board *considering* an ASOP specific to public plans
  - CCA PPC White Paper is very detailed, but not binding
- Government Finance Officers Association (GFOA) Best Practices (BP)
  - Issued by GFOA's CORBA Committee on Retirement and Benefits Administration
  - **October 2013 BP: Core Elements of Pension Funding Policy**
    - Much less detailed but consistent with CCA PPC White Paper

Comparison of Recent Actuarial/GFOA Guidance

- Remarkable consistency on Funding Policy Objectives
  - Fund the expected cost of all promised benefits (*i.e.*, fund normal cost plus 100% of any unfunded actuarial liabilities).
  - Match funding cost of benefits to years of service (*i.e.*, target demographic matching or generational equity).
  - Have costs emerge stably and predictably (*i.e.*, manage contribution volatility).
  - Balance competing funding-policy objectives.
    - CCA PPC White Paper focuses on balancing demographic matching against contribution volatility
  - Actually fund the "actuarially determined contribution" as determined by the plan's funding policy.

Comparison of Recent Actuarial/GFOA Guidance

- General consistency on funding policy specifics
  - Entry Age cost method
  - Five year asset smoothing preferred
  - 15 to 20 year UAAL amortization preferred
    - Perhaps longer for assumption changes
    - Much shorter for plan amendments
  - "25 is the new 30" for maximum UAAL amortization period
- CCA PPC White paper provides by far the most detailed discussion and analysis
  - Evaluates and categorizes policy alternatives
    - Model, Acceptable, Acceptable with Conditions, Non-recommended and Unacceptable
  - Detailed, empirical rationales for all recommendations

Who will replace GASB on funding policy?

- State regulatory agencies
  - Texas Pension Review Board
  - California Actuarial Advisory Panel (no authority)
- State legislatures
  - Could refer to actuarial or GFOA guidance
  - Could develop funding policy requirements independently
    - See Florida, Georgia and (recently) Tennessee
- Federal legislature – not!

Should funding policies be set in law?

- Law should focus on requiring some legally enforceable actuarially based funding policy
  - Leave policy specifics to independent pension board
- Can a one-size-fits-all funding policy be best for all plans?
  - Funding policy balance of policy objectives will vary by plan
    - More mature plans may require more volatility management
  - Large state plans may require simpler “direct rate smoothing”
    - Even fixed contribution rate approach can have some merit
- Legislative process not conducive to technical policy issues
  - Consider well-informed, fully deliberated model legislation?
  - Prohibited practices?
    - Long rolling amortization, “ultimate entry age” cost method

The one thing to know about all this actuarial stuff

C + I = B + E

Contributions + Investment Income

equals

Benefit Payments + Expenses

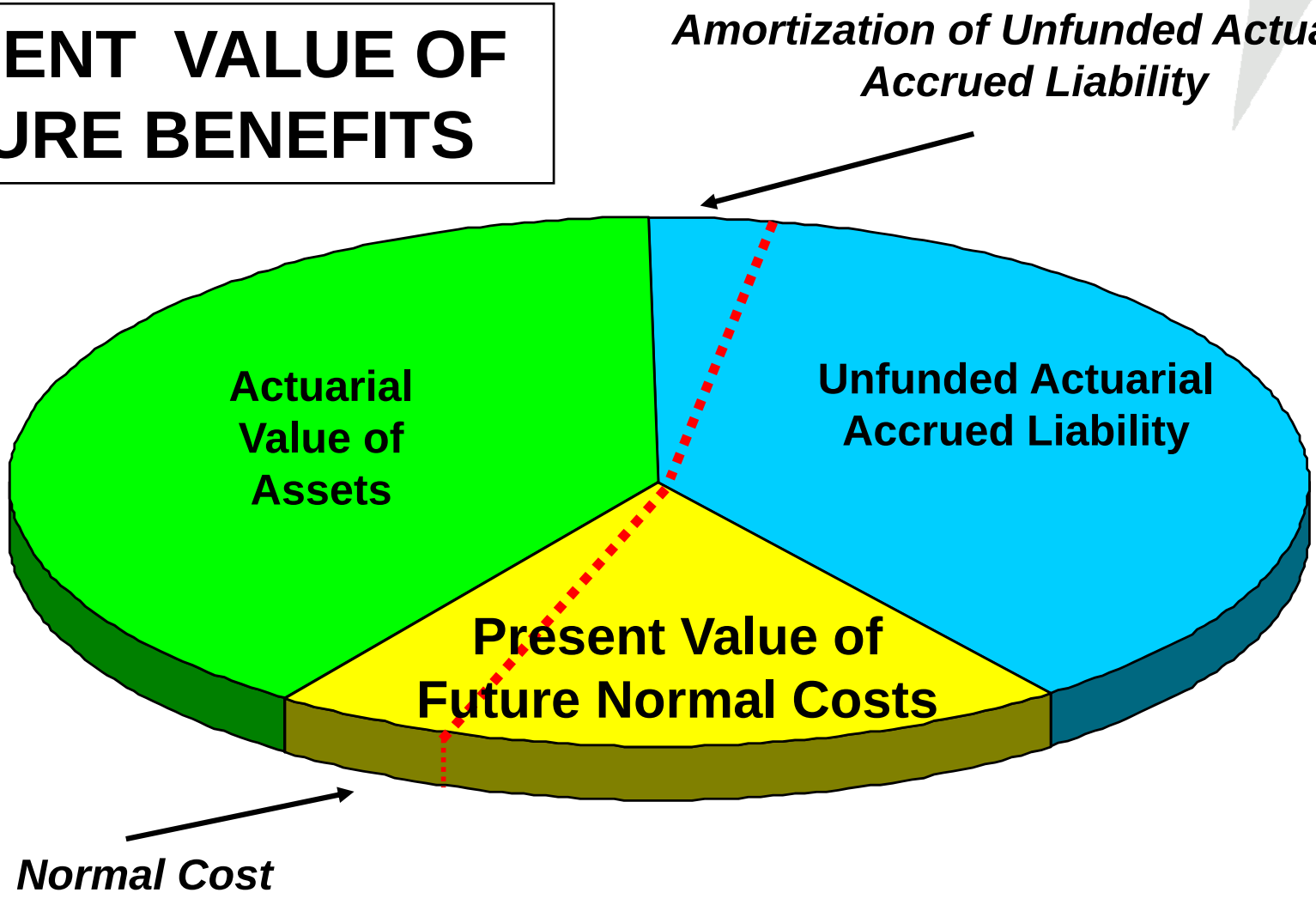
- Actuarial valuation determines the current or “measured” cost, not the ultimate cost
- Assumptions and funding methods affect only the timing of costs

Three Funding Policy Components

- **Actuarial cost method** allocates present value of member's future benefits to years of service
  - Defines Normal Cost and Actuarial Accrued Liability (AAL)
- **Asset smoothing method** manages short term market volatility while tracking MVA.
  - Defines the Unfunded Actuarial Accrued Liability (UAAL)
- **Amortization policy** sets contributions to systematically pay off the UAAL.
  - Length of time and structure payments
- CCA PPC guidance also discusses "direct rate smoothing"
  - Phase-ins and Contribution "collars"

Funding Policy and Annual Cost

PRESENT VALUE OF FUTURE BENEFITS



READ the CCA PPC White Paper!

http://www.ccactuaries.org/publications/news/CCA-PPC-White-Paper-on-Public-Pension-Funding-Policy.pdf

Then CALL me to discuss!

415.263.8273
pangelo@segalco.com

Appendix:

Conference of Consulting Actuaries Public Plans Community (CCA PPC)

Actuarial Funding Policies and Practices for Public Pension Plans

October 2014

Conference of Consulting Actuaries (CCA PPC) Funding Policies and Practices – October 2014

- Develops a Level Cost Allocation Model (LCAM) based on principles and objectives
  - Objectives developed both in general and for each policy element
  - Discussions and parameters reflect empirical experience
- Guidance is primarily for pension plans
  - Basis for an Actuarially Determined Contribution (ADC)
  - Consider applicability to OPEB plans
- Some situations may require special analysis
  - Gain sharing provisions, closed plans
- Fixed rate plans should develop an ADC for comparison
  - Separate future guidance on evaluating and resetting fixed rate

Conference of Consulting Actuaries (CCA PPC) Funding Policies and Practices – October 2014

- Policy structures and parameters evaluated as:
  - Model (not "best") – most consistent with the LCAM
  - Acceptable
  - Acceptable with conditions
  - Non-recommended
  - Unacceptable
- Does not address other actuarial issues
  - Assumption selection,
  - Investment policy and related risk analysis
  - Settlement obligations and other "market-consistent" measures
- Transition policies – should be developed consistent with principles and objectives

General Policy Objectives

1. Future contributions plus current assets sufficient to fund all benefits for current members
   - Contributions = Normal Cost + full UAAL payment
2. Reasonable allocation of cost of benefits and required funding to years of service
   - Both expected costs and variations from expected cost
3. Reasonable management and control of future employer contribution volatility
   - But only as consistent with other policy objectives

General Policy Objectives

4. Support public policy goals of accountability and transparency
   - Clear in intent and effect
   - Allow assessment of whether, how and when sponsor will meet funding requirements
   - Enhance credibility and objectivity of cost calculations
5. Governance issues
   - "Agency risk" – interested parties will seek to influence results
     - Separate model parameters from resulting costs
   - Need for a sustained budgeting commitment
     - Avoid diverting resources needed to support ongoing cost

General Policy Objectives

- Policy objectives 2 and 3 reflect two aspects of the general policy objective of “interperiod equity” (IPE).
- Objective 2 promotes “demographic matching”
  - intergenerational interperiod equity
- Objective 3 promotes “volatility management”
  - period-to-period interperiod equity
- These two aspects of IPE tend to move funding policy in opposite directions.
  - policy objectives 2 and 3 combine to seek to balance intergenerational and period-to-period IPE,
  - Balance demographic matching vs. volatility management

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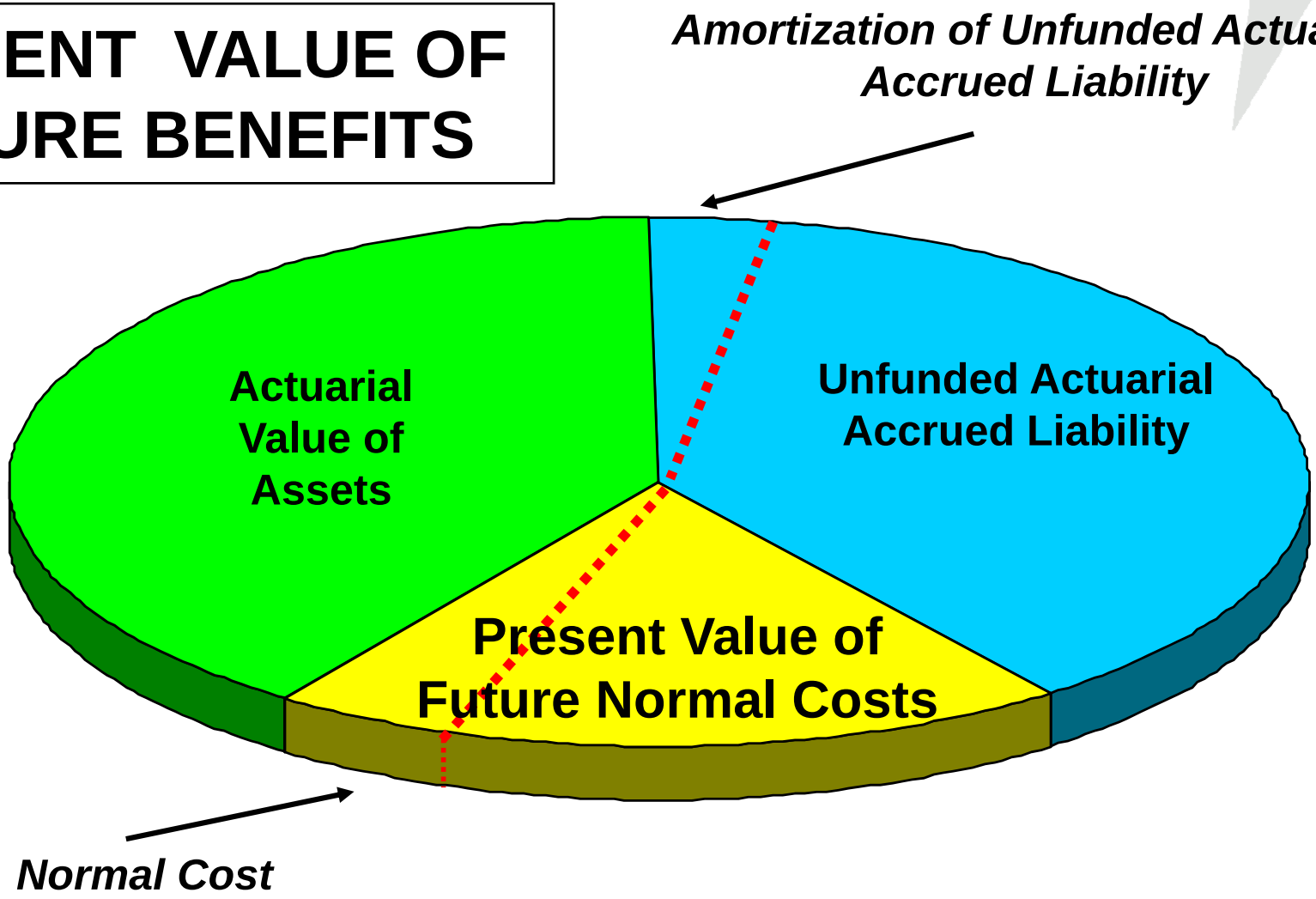


Actuarial Cost Method

- Specific policy objectives (partial list)
  - The Normal Cost for a member reasonably related to the expected cost of that member's benefit.
  - Expected cost of each year of service emerges as a level percentage of member compensation.
  - Allow for comparison between plan assets and the accumulated value of past Normal Costs for current participants, AKA the Actuarial Accrued Liability
- Leads to Entry Age method as model practice
- For DROPs, allocate Normal Cost until expected retirement
  - This is not the Entry Age variation adopted by GASB

Entry Age Method – Multiple tiers

- Model practice bases each member's Normal Cost on that member's benefit
- Alternative "Ultimate Normal Cost" (aka Ultimate Entry Age) bases all Normal Costs on current open tier
  - Contribution impact depends on amortization periods
- Is this an acceptable funding method?
  - Arguments in favor: plan-wide Normal Cost stability, policy issues
  - Arguments against: delinks Normal Cost from benefit
    - Reallocates NC vs AAL unrelated to benefit
    - Mixes cost method and amortization policy

Actuarial Cost Method

- Model practices
  - Entry age, level percent of pay, funding to retirement
  - Normal cost based on benefit for each member's tier
  - Replacement life Normal Cost for changes within tier
- Acceptable practices
  - Aggregate and Frozen Initial Liability considered acceptable but fundamentally different approaches
    - Disclose Entry Age Normal Cost and UAAL, with equivalent amortization period
  - "Funding to Decrement" variation of Entry Age method
  - "Averaged Entry Age" Normal Cost for changes within tier

Actuarial Cost Method

- Acceptable with conditions practices
  - Projected Unit Credit method
  - EAN variation using an aggregated normal cost rate
  - Aggregate and Frozen Initial Liability without Entry Age based disclosures
- Non-recommended practices
  - “Ultimate Normal Cost” where Normal Cost for member in closed tier based on open tier benefit
- Unacceptable practices
  - Traditional Unit Credit for pay related benefits
  - “Pay-as-you-go” if policy intent is to fund during active service

Asset Smoothing Methods - Objectives

- Specific policy objectives (partial list)
- Unbiased relative to market
  - Same smoothing period for gains and for losses
  - "Market value corridors" symmetrical around market value
- Do not selectively reset at market value only when market value is greater than actuarial value.
- Incorporate the ASOP 44 concepts related to smoothing period and range from market value
- Prefer methods that fully recognize deferred gains and losses in the UAAL by some date certain.
  - Intergenerational equity; accountability and transparency

Asset Smoothing Methods - Objectives

- Unbiased relative to realized vs. unrealized gains/losses
- Review of Income Based Smoothing Methods:
  - Contributions and benefits recognized immediately
  - Split income into Immediate and Deferred portions
    - Deferred portion gets “smoothed”
  - Smooth over n years, n = 3, 5, 7, 10, 15 – or infinite
    - Is rolling (asymptotic) smoothing acceptable?
  - Decide what part of earnings gets smoothed
    - Unrealized gains/losses
    - All capital gains/losses
    - **Total return above or below assumed earnings**

Actuarial Standards of Practice No. 44

- ASOP 44 provides framework for tradeoff between smoothing period and (possibly) MVA corridor
  - AVA must be likely to return to MVA in a reasonable period
  - AVA must be likely to stay within a reasonable range of MVA
- Exception: If AVA stays “within a sufficiently narrow range” or returns “in a sufficiently short period” then only one or the other is required

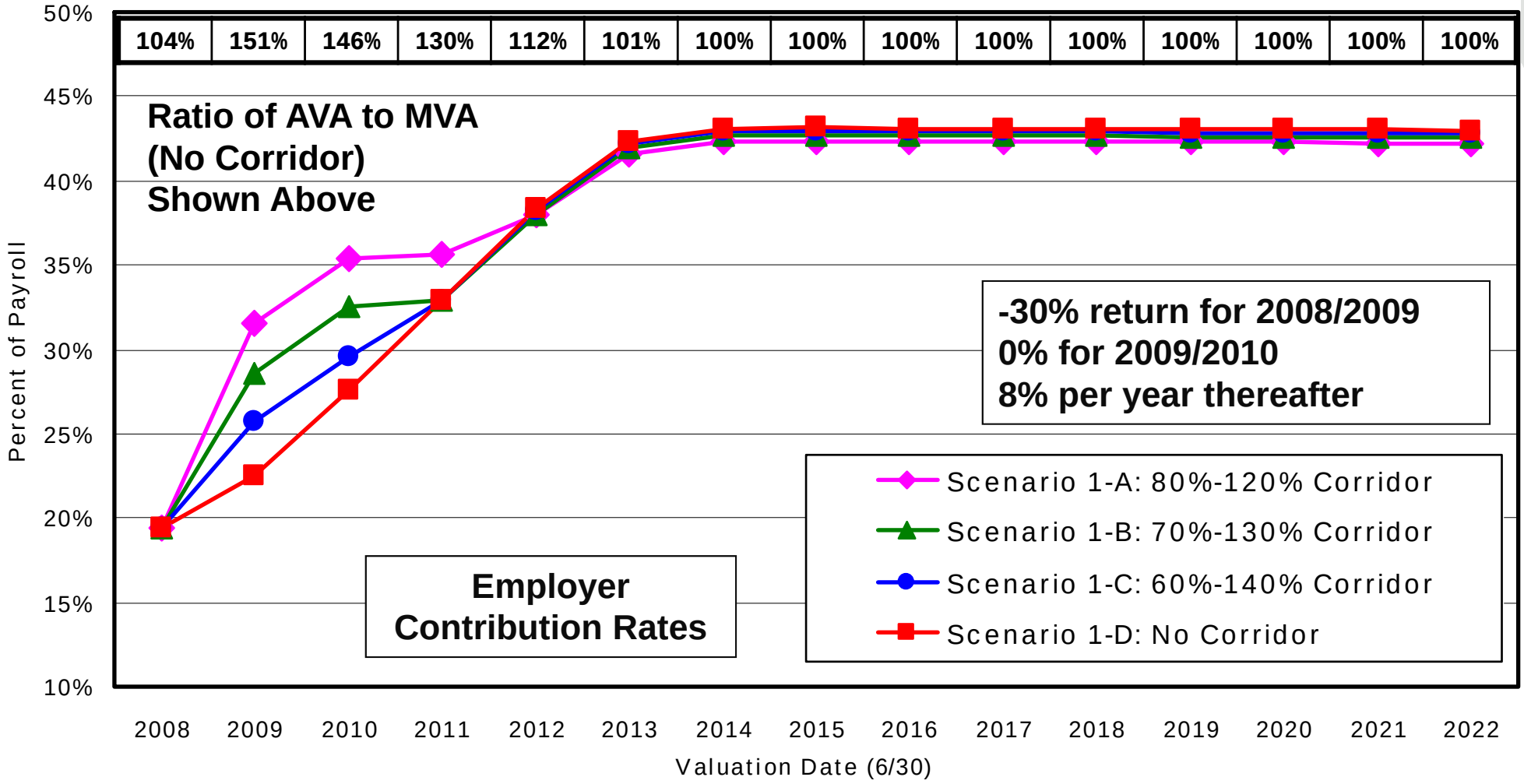
5-year Smoothing and MVA Corridor

- Model: 5 years is “sufficiently short” under ASOP 44
  - Long and consistent industry practice, GASB Exposure Draft
  - 5 year smoothing with no corridor is ASOP compliant
    - But having corridor structure may still be useful
- Other reasons to consider MVA corridor
  - Accelerates contribution increases
    - Market timing – more contributions in down market
    - Cash flow – avoid selling assets to pay benefits
    - Solvency – if contributions ever stop, increased plan assets could secure more benefits (extreme case)
    - Employer preference: get higher costs into cost structure

Managing past volatility (market downturn)

- Asset smoothing manages transition from lower to higher cost level
- Two policy components, two time frames
  - Asset smoothing period – determines how long to reach higher level
  - MVA corridor – determines how costs go from lower level to higher level
    - Straight line or sharp, immediate increase
- Substantial review of cost patterns after 2008 downturn

5 Year Smoothing Period – various corridors



Longer Smoothing and MVA Corridor

- Longer smoothing produces larger AVA ratios
  - Longer period increases need for MVA corridor under ASOP 44
- Use 2008/2009 “worst case” for 5 year smoothing
  - AVA ratios exceeded 140%
  - 30% market drop would have made AVA ratios reach 150%
- Use classic 80%-120% for “very long” smoothing
  - 15 years (CalPERS from 2005 to 2013)

Rolling vs Layered Smoothing

- Fixed, separate smoothing periods are consistent with accountability and demographic matching
- Single rolling smoothing period avoids “tail volatility”
  - Consistent with volatility management
  - Substantially extends recognition period
  - Argues for narrower MVA corridors
- With fixed, separate smoothing periods, tail volatility can be controlled by limited active management of deferrals
  - Not “mark to market”
  - No change in net deferral amount or period for full recognition

Asset Smoothing – Model Practices

- Deferrals based on total return gain/loss relative to assumed earnings rate
- Fixed smoothing periods not less than 3 years
- Maximum market value corridors:

Smoothing Period	MVA Corridor	
5 or fewer years	50% - 150%	
7 years	60% - 140%	
10 years	70% - 130%	(acceptable)

Asset Smoothing – Model Practices

- Combine smoothing periods or restart smoothing only to avoid “tail volatility”
  - Appropriate when net deferral amount relatively small
    - Net deferral amount and deferral period unchanged
  - Avoid using frequent restart of smoothing to achieve de facto rolling smoothing
  - Avoid restarting smoothing only accelerate recognition of deferred gains
    - i.e., only when market value is greater than actuarial value
- Additional analysis, such as solvency projections, is likely to be appropriate for closed plans

Asset Smoothing – Acceptable Practices

- Five year (or shorter) smoothing with no corridor
- Rolling smoothing periods with maximum MVA corridor = percentage of deferral amount recognized each year

Rolling Period	Deferral Recognition	Maximum MVA Corridor
3 years	33%	+/- 33%
4 years	25%	+/- 25%
5 years	20%	+/- 20%

- Projections of when the actuarial value is expected to return within some narrow range of market value.

Asset Smoothing Methods

- Acceptable with Conditions Practices
  - 15 year smoothing with 80%/120% maximum MVA corridor
- Non-recommended Practices
  - Longer than 5 year smoothing with no corridor
  - 15 years or shorter smoothing with MVA corridors wider than shown above
- Unacceptable Practices
  - Smoothing period longer than 15 years
- Transition Policies
  - Continue current layers with appropriate corridors
  - Fix rolling smoothing at its current period (or use rolling corridors)

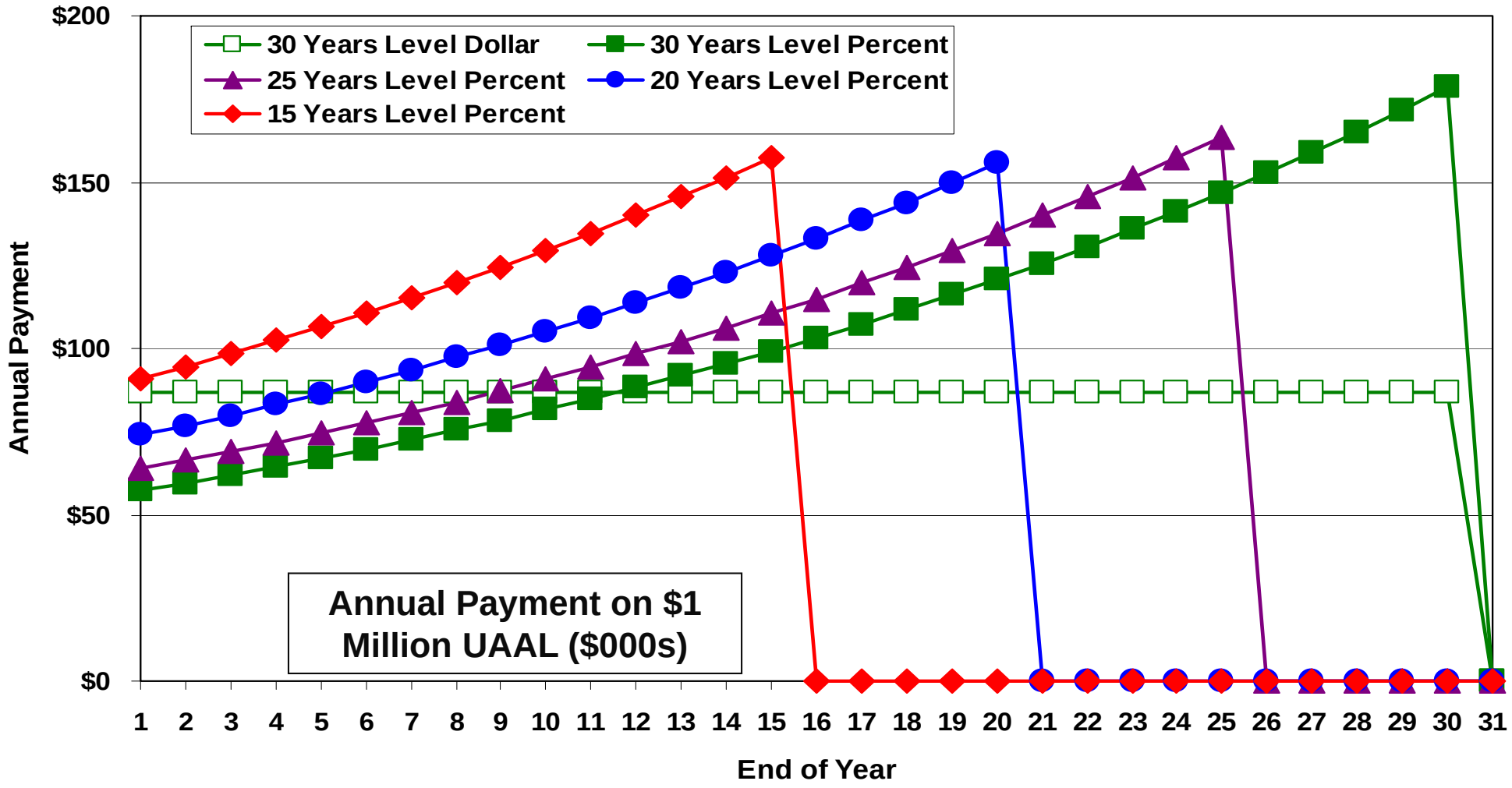
Amortization of Unfunded Liability

- Source of Unfunded Liability (UAAL/NPL)
  - Plan changes
  - Assumption or method changes
  - Gains / losses
- Amortization method
  - Level dollar amount
  - Level percentage of pay
- Amortization structure
  - One layer (uniform) or multiple layers
  - Fixed period (closed) or rolling (open)

Illustration of Amortization Methods and Periods

7.75% interest 4.00% salary incr.	30 years Flat dollar	30 years % of pay	25 years % of pay	20 years % of pay	15 years % of pay
Increase in AAL	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Amortization factor	11.5286	17.4526	15.6672	13.5359	10.9916
(first year)	0.086741	0.057298	0.063827	0.073878	0.090979
Amortization amount					
Year 1	$ 86,741	$ 57,298	$ 63,827	$ 73,878	$ 90,979
Year 15	$ 86,741	$ 99,222	$ 110,529	$ 127,932	$ 157,546
Year 20	$ 86,741	$ 120,718	$ 134,475	$ 155,649	$ 0
Year 25	$ 86,741	$ 146,872	$ 163,609	$ 0	$ 0
Year 30	$ 86,741	$ 178,692	$ 0	$ 0	$ 0
Total amount paid					
Principal	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
Interest	1,602,221	2,213,555	1,658,153	1,199,933	821,719
Total	$ 2,602,221	$ 3,213,555	$ 2,658,153	$ 2,199,933	$ 1,821,719

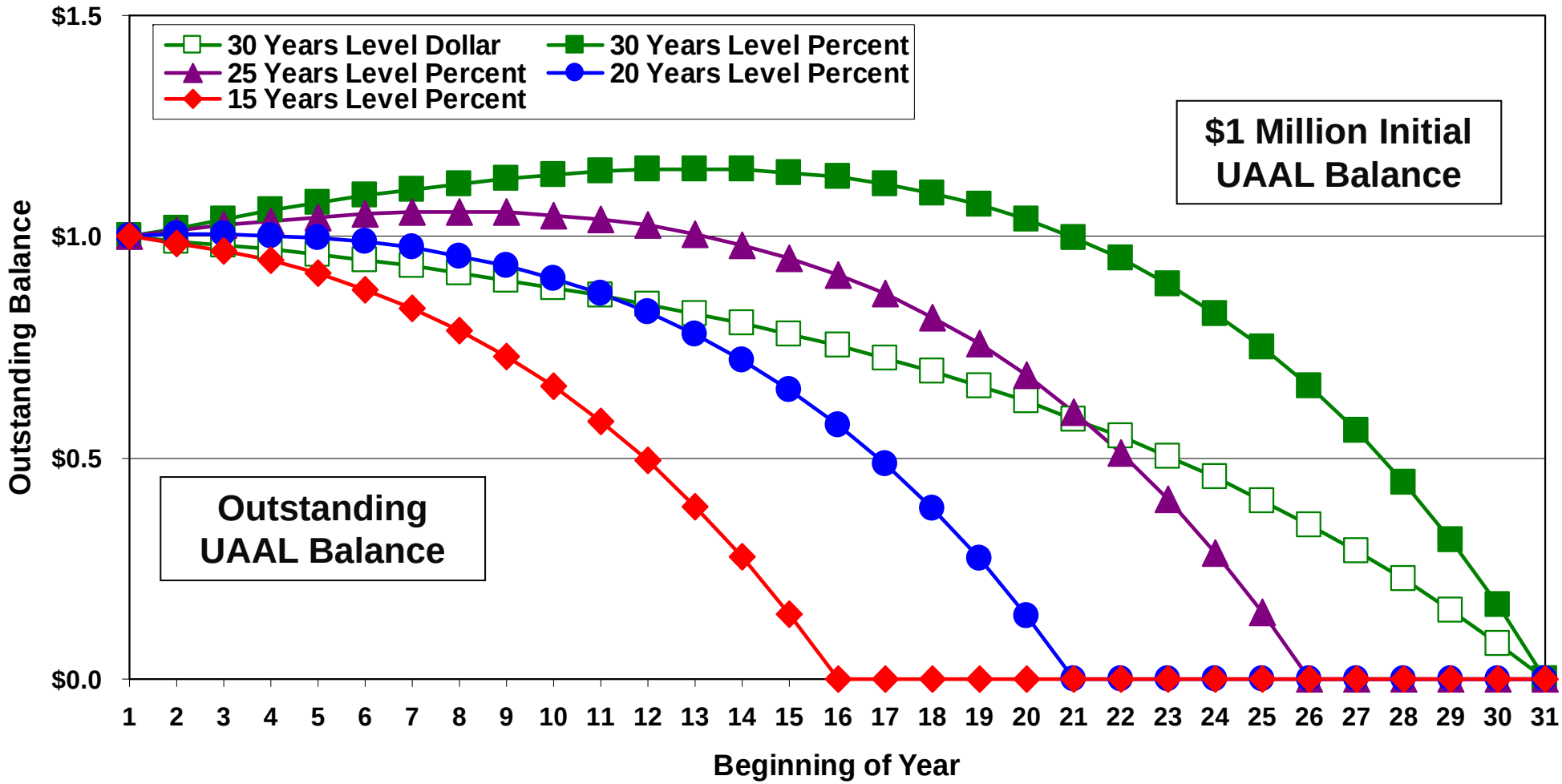
Amortization Illustration
Annual Payment ($ in 000s)



Negative Amortization

- $1,000,000 liability, 7.75% interest
- First year interest only is $77,500
- With level dollar payments, payments are always greater than interest
- With level percentage payments, early payments can be less than interest
  - UAAL increases (but not as a percentage of payroll!)
  - Eventually larger payments cover interest plus increased UAAL

Amortization Illustration
Outstanding UAAL Balance ($ in millions)



Model Layered Fixed Periods

- Model approach is layered fixed periods
  - Accountability and transparency
- Level percent of pay (for pay-related benefits)
- Amortization periods: tradeoff between demographic matching and volatility management
  - Two aspects of “interperiod equity”
    - see General Policy Objectives 2 and 3
  - Constraint: consideration of negative amortization
- For gains and losses
  - Under 15 years: too volatile (e.g., gains in the late 1990s)
  - Over 20 years: too much negative amortization

Model Layered Fixed Periods

- Assumption change amortization could be longer than gains/loss amortization
  - Assumption changes are long term remeasurements, so get longer amortization
  - However, longer than 25 years has substantial negative amortization
- Surplus amortization: not symmetrical with UAAL!
  - Normal Cost requires UAAL asymmetry
    - Avoid the contribution holidays of the late 1990s
  - 30 years reserved for surplus
  - Other approaches to Surplus management not precluded
    - Change asset allocation and/or set up non-valuation asset

Model Layered Fixed Periods

- For plan amendments, volatility management is generally not an issue, only demographic matching
  - Remaining active future service or retiree life expectancy
  - Could use up to 15 years as an approximation for actives
    - Any period that entails negative amortization is inconsistent with demographic matching and governance (goals 2 and 5)
  - Could use up to 10 years as an approximation for inactives
    - For retirees, control for (incremental) negative cash flow
  - For Early Retirement Incentive programs, use a period corresponding to the period of economic savings
    - Shorter than other plan amendments, typically around 5 years
  - For lump sums (13th checks) amortization may not be appropriate

Model Layered Fixed Periods

- Separate issues for plan amendments that reduce liabilities
  - Avoid amortization credit shorter than period for UAAL
  - “Benefit Restorations” amortized consistent with UAAL or consistent with credit from prior benefit reduction
- Managing tail volatility with multiple fixed period layers
  - Combing offsetting charge and credit layers
  - Should result in substantially the same current UAAL payment
  - Avoid using amortization restarts to achieve de facto rolling amortization
  - Restart amortization layers when moving from Surplus to UAAL condition

Model layered fixed periods - summary

Source	Period
Active Plan Amendments	Demographics or 15 years
Inactive Amendments	Demographics or 10 years
Experience Gain/Loss	15 to 20
Assumption Changes	15 to 25
Early Retirement Incentives	5 or less

- Minimum contribution:
  Normal Cost less 30 year amortization of surplus

Other Fixed Period Amortization Periods

- Fixed Period layers for all UAAL sources
  - Up to 25 years: Acceptable With Conditions (25 is the new 30!)
  - 26 to 30 years: Non-recommended
  - Over 30 years: Unacceptable
- Extraordinary method changes
  - Change from Projected Unit Credit to Entry Age
  - Starting of funding for a pay-go plan (e.g., OPEB plan)
  - Up to 30 years is Acceptable with Conditions
- Single fixed period combined layer for entire UAAL
  - With periodic restarts over new (longer) period
  - Non-recommended practice

Level Dollar Amortization

- Fundamentally different from level percent of pay amortization
  - No level dollar amortization period is equivalent to a level percent period.
    - Avoid trading off level dollar amortization for longer amortization periods
- Level dollar amortization is a separate policy decision
  - Could be appropriate when benefits are not pay related
  - Could be appropriate is sponsors is particularly averse to future cost increases, e.g., utilities setting rates for rate payers
  - Acceptable practice using same model periods
    - Ideally with stated rationale if used with pay related benefits

Open “Rolling” Amortization

- For gain/loss (only): annual layers or single (rolling) layer
  - Separate annual layers provide more accountability but also more “tail volatility” (see “managing tail volatility”)
  - Rolling amortization of a single combined gain/loss layer provides less volatility but less accountability
    - Acceptable with Conditions if no negative amortization
    - Non-recommended if any negative amortization
    - Unacceptable if longer than 25 years
  - Additional conditions for single (rolling) gain/loss layer
    - Model periods for other sources of UAAL
    - Separate fixed periods for extraordinary gain/loss events
    - With a significant gain/loss layer, show that objectives are met

Other Rolling Amortization

- Single (rolling) amortization layer for entire UAAL (with or without plan amendments)
  - Not just gain/loss but also assumption/method changes
  - Neither Acceptable nor Acceptable with Conditions
- Single (rolling) amortization layer for entire UAAL with separate layers only for plan amendments
  - Non-recommended practice, even without negative amortization
  - Unacceptable practice, if period entails negative amortization
- Single (rolling) amortization layer for entire UAAL including plan amendments
  - Unacceptable practice, even without negative amortization

Transition policies

- Avoids undue disruption to plan sponsor budgets from immediate adoption of new funding policies
- Develop transition with advice of the actuary, consistent with policy objectives and other funding policy principles
- Example of transition policy for UAAL amortization
  - Continue current (declining) periods for current UAAL
  - Fix any rolling layer at its current period
  - Apply model periods for future changes in UAAL

Direct Rate Smoothing (DRS)

- Caution: DRS can refer to two very different types of funding policy features
  - CCA PPC guidance discusses using DRS with asset smoothing
    - Phase-in the cost impact of an assumption change
      Contribution collar: limit rate increases to some percent of pay
- DRS instead of asset smoothing
  - Apply DRS to get from current rate to new rate based on amortization of UAAL determined on market value basis
    - Emerging DRS practices to avoid "rolling" recognition of gain/loss and assumption changes
  - CCA PPC guidance does not address this type of DRS
    - Considering development of separate white paper

DRS with Asset Smoothing

- Phase-in the cost impact of an assumption change
  - Acceptable with regularly scheduled experience analyses
    - Complete phase-in before next experience analysis (or 5 years)
  - Acceptable with Conditions if no scheduled experience analyses
    - Complete phase-in before starting another phase-in (or 5 years)
  - Apply to cost increases and decreases, if material
- Non-recommended practices
  - Phase-in of cost of assumption changes over longer than 5 years
  - Phase-in of cost impact of gain/loss (after asset smoothing and UAAL amortization)
  - Contribution collars in conjunction with asset smoothing
  - Phase-in or contribution collars for cost of plan amendments

QUESTIONS

READ the CCA PPC White Paper!

http://www.ccactuaries.org/publications/news/CCA-PPC-White-Paper-on-Public-Pension-Funding-Policy.pdf

KPMG

cutting through complexity

Implementation of New GASB Pension Standards

2015 NAPPA Legal Education Conference

June 25, 2015

Agenda

- New GASB Pension Standards
- Information from Multiple-Employer Plans
- Actuarial Assumptions for Single-Employer and Agent Plans
- Communication
- Census Data Testing at Employer
- PII
- Other Emerging Issues

New GASB Pension Standards

KPMG BUSINESS SCHOOL

New GASB Pension Standards

GASB Statement No. 67

Accounting and Financial Reporting For Pension Plans (Plan Reporting)

Effective for fiscal years beginning after **June 15, 2013**

GASB Statement No. 68

Accounting and Financial Reporting for Pensions (Employer Reporting)

Effective for fiscal years beginning after **June 15, 2014**

Summary of Employer Accounting and Reporting Provisions

- Employers need to determine the following pension amounts:
  - Net pension liability (asset)
  - Pension expense
  - Pension deferred outflows of resources and deferred inflows of resources
- Employers participating in single-employer or agent multiple-employer plans recognize 100 percent of the above amounts for each plan
- Employers participating in cost-sharing multiple-employer plans recognize their proportionate share of the collective amounts for the plan as a whole.

Summary of Plan Types

- Single-employer plan
  - Pensions are provided to the employees of only one employer
- Agent multiple-employer plan
  - Plan assets are pooled for investment purposes but separate accounts are maintained for each individual employer so that each employer's share of the pooled assets is legally available to pay the benefits of only its employees
- Cost-sharing multiple-employer plan
  - Pension obligations to the employees of more than one employer are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan
- Primary government and its component units are considered to be one employer

Accounting, disclosure and auditing of pension amounts is dependent on the type of plan in which an employer participates

Information from Multiple-Employer Plans

AICPA Whitepapers – Multiple-employer Plans

Cost-Sharing Plan

- Audited Schedule of Employer Allocations
- Audited Schedule of Employer Pension Amounts

Agent Plan

- Separate actuarial valuation report for each employer, including actuarial certification letter
- Audited Schedule of Changes in Fiduciary Net Position by Employer
- Assurance on Plan-controlled elements of the Census data

Example Schedule of Employer Allocations – Cost-Sharing Plans

EXAMPLE COST SHARING PENSION PLAN

Schedule of Employer Allocations

June 30, 2015

Employer/ Nonmployer (special funding situation)	2015 Actual Employer Contributions	Employer Allocation Percentage
State of Example	$ 2,143,842	38.9 %
Employer 1	268,425	4.9
Employer 2	322,142	5.8
Employer 3	483,255	8.8
Employer 4	633,125	11.5
Employer 5	144,288	2.6
Employer 6	95,365	1.7
Employer 7	94,238	1.7
Employer 8	795,365	14.4
Employer 9	267,468	4.9
Employer 10	267,128	4.8
Total	$ 5,514,641	100.0

Example Schedule of Employer Pension Amounts– Cost-Sharing Plans

EXAMPLE COST SHARING PENSION PLAN
Schedule of Pension Amounts by Employer
June 30, 2015

		Deferred Outflow of Resources					Deferred Inflows of Resources				Pension Expense		
Employer/ Nonmployer (special funding situation)	Net Pension Liability	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings	Changes of Assumptions	Changes in Employer Proportion and Differences Between Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Changes of Assumptions	Changes in Employer Proportion and Differences Between Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Propotion and Proportionate Share of Contributions	Total Employer Pension Expense
State of Example	$ 38,589,135	428,768	2,058,088	1,500,690	782,365	4,769,911	380,371	–	584,365	964,736	1,878,717	12,375	1,891,092
Employer 1	4,831,647	53,685	257,688	187,898	96,633	595,903	47,625	–	125,325	172,950	235,229	(1,793)	233,436
Employer 2	5,798,553	64,428	309,256	225,499	115,971	715,155	57,156	–	245,386	302,542	282,303	(8,088)	274,215
Employer 3	8,698,585	96,651	463,925	338,279	173,972	1,072,826	85,742	–	125,632	211,374	423,492	3,021	426,513
Employer 4	11,396,244	126,625	607,800	443,188	227,925	1,405,537	112,332	–	386,325	498,657	554,828	(9,900)	544,928
Employer 5	2,597,183	28,858	138,516	101,002	51,944	320,320	25,600	–	42,358	67,958	126,444	599	127,043
Employer 6	1,716,569	19,073	91,550	66,756	34,331	211,710	16,920	–	24,325	41,245	83,571	625	84,197
Employer 7	1,696,283	18,848	90,468	65,967	33,926	209,209	16,720	–	125,325	142,045	82,584	(5,712)	76,871
Employer 8	14,316,562	159,073	763,550	556,756	286,486	1,765,865	141,118	–	152,005	293,123	697,004	8,405	705,409
Employer 9	4,814,421	53,494	256,769	187,228	68,325	565,815	47,456	–	87,325	134,781	234,391	(1,188)	233,203
Employer 10	4,808,301	53,426	256,443	186,990	67,528	564,386	47,395	–	41,035	88,430	234,093	1,656	235,749
Total	$ 99,263,485	1,102,928	5,294,055	3,860,249	1,939,406	12,196,638	978,435	–	1,939,406	2,917,841	4,832,655	–	4,832,655

Example Schedule of Changes in Fiduciary Net Position by Employer– Agent Plans

Example Agent Multiple-Employer PERS

Combining Schedule of Changes in Fiduciary Net Position

Year ended June 30, 2015

	Employer 1	Employer 2	Employer 3	Total
Additions:				
Contributions:				
Employer	86,252,000	34,500,000	51,751,000	172,503,000
Member	32,662,000	13,065,000	19,597,000	65,324,000
Investment income:	80,965,000	20,347,000	37,112,000	138,424,000
Total additions	199,879,000	67,912,000	108,460,000	376,251,000
Deductions:				
Pension benefits, including refunds	384,635,000	184,352,000	228,356,000	797,343,000
Administrative expenses	4,716,000	1,886,000	2,829,000	9,431,000
Total deductions	389,351,000	186,238,000	231,185,000	806,774,000
Net increase (decrease)	(189,472,000)	(118,326,000)	(122,725,000)	(430,523,000)
Net position restricted for pension benefits:				
Beginning of year	5,843,645,000	1,468,538,000	2,678,595,000	9,990,778,000
End of year	$ 5,654,173,000	1,350,212,000	2,555,870,000	9,560,255,000

Cost of Providing Information

- Different views on who should pay for cost of information provided by plan based on exclusive benefit rule (i.e. plan cannot use plan resources to pay employer expenses)
- Involvement of plan legal counsel is critical
- Need reasonable basis for determining which costs are necessary for administering the plan
- Costs that should be considered include:
  - Actuary
  - Plan personnel
  - Auditors
- Difficult to establish bright line
- Consider documenting rationale and methodology

Actuarial Assumptions for Single-Employer and Agent Plans

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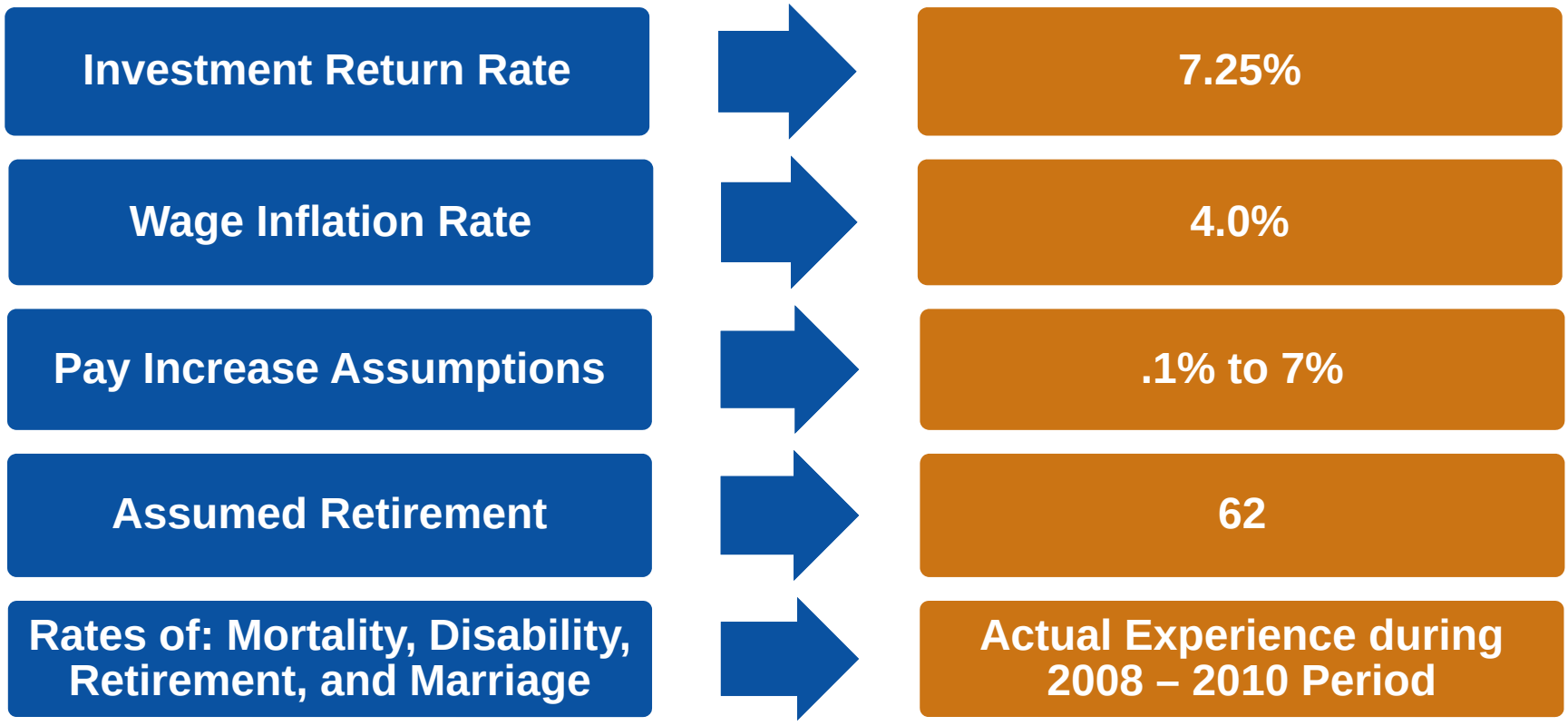
Actuarial Assumptions



What level of involvement should the employer and their auditor have in established actuarial assumptions?

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Roles of Plan and Employer in Establishing Actuarial Assumptions

- Employers participating in single and agent multiple-employer plans should directly receive actuarial valuation reports from plan actuary to rely on as management specialist (AICPA Recommendation)
- Both employers and plans are responsible for evaluating appropriateness of actuarial assumptions
- Recommended that plan involve employer and auditors in discussion of actuarial assumptions prior to completing actuarial valuations

Communication

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Communication

Communication

- Essential for effective communication between parties in implementing new pension standards
- Previously there has been a barrier to communication because:
  - Plan engages actuary (no relationship between employer and plan actuary)
  - Plan viewed as party solely responsible for actuarial valuation
- New pension standards and audit guidance from AICPA will significantly increase communication amount the parities regarding:
  - Actuarial assumptions and methods
  - Actuarial valuation report
  - Census data
  - Auditor confirmations

Census Data Testing at Employer

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Testing Census Data Reported to Plan for Single-Employer and Cost-Sharing Plans

- Census data file is an accumulation of census data information reported by participating employers to the plan over numerous years that is continually adjusted by the plan based on known events
- New audit guidance makes it clear that plan auditor (single-employer and cost-sharing plans) must obtain evidence regarding the completeness and accuracy of census data reported to the plan
- Determination of which parties will perform testwork
  - Plan auditor
  - Plan internal audit
  - Employer auditor

Testing Census Data Reported to Plan for and Cost-Sharing Plans

- Risk-based approach by plan auditor to select employers to test
  - Individually important employers (e.g. > 20% of plan) tested annually
  - Plan auditor performs risk assessment on remaining employers using tiered approach
    - For example:
      - Employers between 5 and 20% tested to approximate a 5-year cycle
      - Employers less than 5% tested to approximate a 10-year cycle
      - Many small employers will never be tested (e.g. 400 employers represent 2% in aggregate of plan)

PII

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Process and Related Risks for Information Exchange

- Exchanging information that includes PII between:
  - Plan and employer/employer auditor, and
  - Actuary and employer/employer auditor
- Establishing process
  - Limit exchange to critical information/elements
  - Use encryption for all electronic files
  - Evaluate security risks, including web sites
    - Collaborative web sites potentially present additional risks

Process and Related Risks for Information Exchange

- Develop policy for lost data
  - Incident reporting requirements
  - Notification of individuals
  - Credit monitoring and insurance

Other Emerging Issues

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What Questions Do You Have?

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cutting through complexity

Thank You!

SEGAL

Public Sector Letter

Benefits, Compensation and HR Consulting

NOVEMBER 2011

Planning a Successful Pension Funding Policy

With governmental budgets under strain across the country, officials are taking a careful look at what their pension plan costs are today and where those costs are likely to head in the future. Decision makers are busy crafting plans to ensure they will be able to meet their current and future obligations.

But how can stakeholders be assured that their plan's funding approach will result in adequate assets to pay benefits? Reviewing and, if necessary, updating the plan's funding policy is a good first step.

A pension plan funding policy determines how much should be contributed each year by the employer and the active participants to provide for the secure funding of benefits in a systematic fashion.[1] This *Public Sector Letter* explores important considerations that stakeholders should keep in mind when evaluating their plan's funding policy.

Goals of a Pension Plan Funding Policy

A comprehensive funding policy seeks to ensure that a pension plan is on track to achieve three key goals:

- ***Contribution and Budgetary Predictability*** This goal, which is so important to governmental employers, can be achieved if the funding policy is purposely designed to develop costs that are expected to bear a reasonable relationship to payroll. This includes designing a funding policy so as to manage and control contribution volatility. It is also essential that contributions be based upon actuarial assumptions — demographic and economic — that reflect best estimates of future experience. The process of setting assumptions generally involves policy considerations separate from setting funding policy. The text box on page 2 provides a brief discussion on setting assumptions.
- ***Benefit Payment*** The payment of benefits is the reason the plan exists. For that reason, funding policies are designed to accumulate assets over time to provide for all benefits to be earned by current participants in the plan. This includes benefits for current retirees and beneficiaries, benefits already earned by current active participants and future benefits to be earned by those current participants. Generally, this key goal is what is meant by having an actuarially determined funding policy, one that is based on actuarial principles.
- ***Intergenerational Equity*** This goal, which consists of ensuring a fair sharing of the costs of the plan across generations of taxpayers, will be achieved if the funding policy ensures a reasonable allocation of the cost of benefits provided by the plan to the years of service worked by employees. In particular, a funding policy can help ensure that the cost of benefit improvements is recognized and paid for during the working careers of those who will receive them.

To some extent, there may be trade-offs involved in meeting all three of these goals simultaneously, but a well-crafted funding policy will ensure that its various elements, working in combination, contribute to the achievement of these important objectives.

Elements of a Funding Policy

To achieve all three of the policy goals described above (management of contribution volatility, funding based on actuarial principles, and intergenerational equity), a comprehensive and well-designed funding policy will include the following three elements:

- An actuarial cost method,
- An asset-smoothing method, and
- An amortization policy.

"A pension plan funding policy determines how much should be contributed each year by the employer and the active participants to provide for the secure funding of benefits in a systematic fashion."

IN THIS ISSUE:

[1] Another timely reason for this discussion involves the Governmental Accounting Standards Board (GASB). GASB's proposed revisions to accounting standards for public plans and their sponsors include fundamental changes in guidance related to funding policy. The nature and consequences of GASB's changing role regarding funding policy are discussed on the last page of this *Public Sector Letter*.

Of course, any funding policy will only be as effective as **the sponsor's commitment to make plan contributions on time and in full.** Contributions are often made in accordance with a plan's funding policy. However, in some instances, plan sponsors' annual contribution rates are fixed in statute or determined in some other manner other than by strict adherence to a funding policy. Fixed contributions, in particular, can pose risks, especially when the plan has a limited ability to adjust benefits. Even in cases where the contribution rate, as originally established, was actuarially determined, if changes in the plan or plan experience occur (*e.g.*, benefit improvements, mortality improvements and/or asset losses), the fixed contribution rate may no longer be sufficient for the plan to achieve its goal of paying all benefits when due. The result could be a rapid escalation in actuarially required contributions, thereby adding to the sponsor's fiscal commitments.

The next three sections of this *Public Sector Letter* are devoted to each of the three elements of a funding policy.

The Role of Assumptions in Plan Funding

Aside from funding methods, assumptions are also critical to the funding of a plan. Forward-looking assumptions about plan demographics, wages, inflation, investment returns and more drive the measurement of pension liabilities and costs, and therefore affect funding. Unlike the selection of funding methods, which involves a fair degree of policy discretion, the selection of assumptions should be based solely on best estimates of actual future experience. While it may be tempting to set assumptions based on how they might affect current contribution requirements, such "results-based assumption setting" should be avoided. It is the plan's actual experience that ultimately determines the cost of the benefits, so the assumptions should try to anticipate actual experience.

Periodic reexamination of plan assumptions is an essential part of any plan's actuarial processes. As a general rule, many plans conduct an experience study every three to five years, an interval that should help ensure that assumptions remain appropriate in the face of evolving conditions and experience. In the current environment, certain assumptions may be worth extra scrutiny.

For example, when it comes to payroll growth, ask the question, "do changes in demographics of the workforce suggest future changes in payroll growth rate?" Typically, plans have an indefinite, open-ended assumption about payroll growth — for instance, that head count will remain stable and that payroll dollars will grow by 3 percent to 4 percent per year, indefinitely. However, during periods when the workforce contracts and/or when annual pay increases disappear because of fiscal strain, the payroll growth assumption may not prove accurate. This creates a risk that plan costs (as a percent of payroll) will escalate, especially in cases where a substantial unfunded actuarial accrued liability (UAAL)* exists.

Another assumption that might be ripe for reexamination is the expected investment return. Here the question is, "do changes in asset allocation or in financial markets suggest a reevaluation of the plan's long-term earnings prospects?" Here again, making an assumption change — and absorbing any cost increases up front — might head off an unwelcome upward trend in plan costs down the road.

A third example is mortality improvements. Does the plan proactively account for the costs that will be associated with the trend towards future increases in life expectancy? Factoring in these likely costs will avoid cost increases in the future and so help to ensure that costs will be more equitably allocated over time.

These are just a few examples of how careful consideration of plan assumptions can avoid unwelcome surprises down the road.

* UAAL is discussed on pages 3 and 4.

Actuarial Cost Method

The actuarial cost method is the means by which the total present value of all future benefits for current active and retired participants is allocated to each year of service (*i.e.*, the "normal cost" for each year) including past years (*i.e.*, the "actuarial accrued liability"). There are several available actuarial cost methods, but most governmental plans use the entry age normal (EAN) cost method while a significant minority use the projected unit credit (PUC) method.

Although the EAN and PUC cost methods are both considered reasonable under actuarial standards of practice and current GASB rules in most circumstances, it is important for plan stakeholders to understand the implications of either method. EAN tends to recognize actuarial liabilities sooner than PUC, and it also tends to result in a more stable normal cost pattern over time, even in the face of demographic shifts. The more stable normal cost pattern over time

"The actuarial cost method is the means by which the total present value of all future benefits for current active and retired participants is allocated to each year of service....including past years."

should help in reducing the risk of higher levels of future contributions.

Under the PUC method, the plan's normal cost is the present value of the benefits "earned" during the year, but based on projected pay levels at retirement. For an individual participant, the PUC normal costs increase each year because the present value increases as the participant gets a year closer to retirement. In contrast, under the EAN method, the normal cost is specifically determined to remain a level percentage of pay over each participant's career.

Because EAN normal cost rates are level for each participant, the normal cost pattern for the entire plan under EAN is more stable in the face of demographic shifts in the workforce. It is this normal cost stability that makes the EAN method the preferred funding method for public plans. Also, GASB has recently reaffirmed their tentative decision to require governmental plans to base their financial statement reporting on the EAN method. This requirement will occur when GASB's proposed changes to financial statement reporting are effective, which is currently scheduled for as early as 2012-2013 fiscal years.

Asset-Smoothing Method

The next element of a comprehensive funding policy is the asset-smoothing method. Because investment markets are volatile and because pension plans typically have long investment horizons, asset-smoothing techniques can be an effective tool to manage contribution volatility and to provide a more consistent measure of plan funding over time. Asset-smoothing methods reduce the effect of short-term market volatility on contributions while still tracking the overall movement of the market value of plan assets, by recognizing the effects of investment gains and losses over a period of years.

"Asset-smoothing methods reduce the effect of short-term market volatility on contributions while still tracking the overall movement of the market value of plan assets, by recognizing the effects of investment gains and losses over a period of years."

Determining the ideal asset-smoothing policy involves balancing the two goals of ensuring fairness across generations of taxpayers and controlling contribution volatility for plan sponsors. A very long smoothing period will greatly reduce contribution volatility, but this may mean current taxpayers are deferring the cost of recent investment experience to future taxpayers. However, a very short smoothing period (or none at all) may result in contribution requirements that fluctuate dramatically from year to year.

Such volatility may also result from an asset-smoothing method that constrains how far the smoothed value can get away from the market value by imposing a market value "corridor." A corridor is typically expressed as a ratio of the smoothed value of assets to the market value of assets.

Actuarial standards of practice and related actuarial studies seek to identify asset-smoothing methods that achieve a reasonable balance between how long it takes to recognize investment experience (the smoothing period) and how much smoothing is allowed in the meantime (the corridor). The resulting smoothing periods are in the range of three to 10 years (with five the most common) and a corridor wide enough to allow the smoothing method to function except in the most extreme conditions. Furthermore, the corridor generally should narrow as the smoothing period gets longer, so there is a trade-off between longer smoothing periods (which reduce volatility) and narrower corridors (which can increase volatility after a large investment loss or gain).[2]

"Even more so than asset-smoothing methods, amortization policies involve a balance between controlling contribution volatility and ensuring a fair allocation of costs among generations."

UAAL Amortization Policy

The third element of a funding policy concerns amortization of the unfunded actuarial accrued liability (UAAL). This policy element determines how current and future UAAL will be paid off or "amortized," and so includes how changes in benefits or actuarial assumptions that affect the actuarial accrued liability should be funded over time. Even more so than asset-smoothing methods, amortization policies involve a balance between controlling contribution volatility and ensuring a fair allocation of costs among generations. Longer amortization periods help keep contributions stable, but excessively long periods may inappropriately shift costs to future generations. In seeking to achieve a "sweet spot" between these two important policy

[2] Asset-smoothing methods, including the relationship between smoothing period and market value corridor, are governed by Actuarial Standard of Practice No. 44, Selection and Use of Asset Valuation Methods for Pension Valuations, which can be accessed from the following page of the Actuarial Standards Board's website: http://www.actuarialstandardsboard.org/asops.asp In particular, see Sections 3.3 and 3.4.

goals, a comprehensive amortization policy will involve the following distinct elements:

- Payment basis,
- Payment structure, and
- Amortization period.

Each of these elements is discussed individually in the following paragraphs.

Payment Basis: Level Dollar vs. Level Percent of Pay

One of the first considerations is whether amortization payments will be set at a level dollar amount (similar to a home mortgage) or as a level percent of pay. The great majority of public pension plans use level-percent-of-pay amortization where the payments toward the UAAL increase each year at the same rate as is assumed for payroll growth. Compared with the level-dollar approach, payments start at a lower dollar amount under the level percent approach, but then increase in proportion to payroll until they are higher.

The level-dollar method is more conservative in that it funds the UAAL faster in the early years. However, the level-percent-of-pay approach is consistent with the pay-related structure of benefits under most public plans. Moreover, because the normal cost is also determined as a level percent of pay, level percent amortization provides a total cost that remains level as a percentage of pay. In contrast, level-dollar amortization of UAAL will produce a total cost that decreases as a percentage of pay over the amortization period. A plan should balance these considerations in choosing between level-percent and level-dollar amortization.

Payment Structure

Amortization policy must also consider how amortization payments should be structured. For example, should the entire UAAL be aggregated and amortized as a single amount, or should the plan track multiple "layers" for each source of UAAL or surplus each year, and amortize these separately? Should the amortization period be fixed or should it be open or "rolling" (with the amortization period restarted each year)? For plans using amortization layers and fixed periods, is it ever appropriate to "restart" with a single amortization layer or otherwise combine the layers?[3]

"Although use of a single amortization layer provides simplicity, use of separate amortization layers for each source of UAAL has the advantage of tracking separately each new portion of underfunding."

Although use of a single amortization layer provides simplicity, use of separate amortization layers for each source of UAAL has the advantage of tracking separately each new portion of underfunding. Under this approach, over time there will be a series of these layers, one for each year's gain or loss as well as for any other changes in UAAL. This is perfectly manageable and in fact provides useful information to stakeholders, as they can view the history of the sources of a plan's UAAL in any year. In practice, the number of layers will be limited by the length of the amortization period as eventually layers are fully amortized, and so are no longer part of the UAAL.

Fixed amortization periods identify a date certain by which each portion of the UAAL will be funded. This can be contrasted with open or rolling amortization, whereby the plan "resets" its amortization period every year. This is analogous to a homeowner who refinances his mortgage each year. Although both methods are common in current practice, fixed amortization periods have the advantage of providing stakeholders with a clearer understanding of the ultimate funding target (full funding) and the path to get there. It is the structure required for private sector pensions, and is increasingly common for public pension plans.

There may be conditions where a plan would want to consider action whereby all the amortization layers are wiped out ("considered fully amortized") and the series is restarted — for example, when the system goes from surplus to UAAL, or from UAAL to surplus. There are other situations when the amortization layers might be restarted or combined. One is when there are alternating years of gains and losses of relatively equal size. In general, plans should reserve the right to restart or otherwise combine the amortization layers whenever appropriate circumstances arise. However, plans using fixed amortization periods should avoid restarting the amortization periods so often that the policy in effect becomes rolling amortization.

Amortization Period

Once the amortization policy has determined the basic structure of payments (*e.g.*, level percent of pay, multiple closed layers), the question becomes, "What is the appropriate period of time over which amortization should occur?" The answer can depend on the source of the UAAL being amortized, as discussed below:

- *UAAL Due to Actuarial Gains/ Losses* Actuarial gains and losses arise when there is a difference between the actuary's estimates (assumptions) and the actual experience of the plan. They can result

[3] Note that depending on plan experience there can be some contribution volatility when gain and loss layers are fully amortized. This can be avoided by selectively combining offsetting gain and loss layers, without affecting the overall amortization periods.

from demographic experience (*e.g.*, the number of new retirees is higher or lower than expected), investment experience (*e.g.*, returns that are higher or lower than expected), or other economic experience (*e.g.*, payroll growth that is higher or lower than expected). In determining the appropriate period for amortizing gains and losses, plan sponsors should strike a balance between reducing contribution volatility (which would lead to longer amortization periods) and maintaining a closer relationship between contributions and routine changes in the UAAL (which would lead to shorter amortization periods). For many plans, amortization periods in the range of 15 to 20 years for gains and losses would assist plans in achieving a balance between these objectives. This "sweet spot" would also reduce or avoid negative amortization, which is discussed in the accompanying text box.

- ***UAAL Due to Changes in Actuarial Assumptions*** Assumption changes (*e.g.*, a modification to the mortality assumption to anticipate future improvements in life expectancy) will result in an increase or decrease in the UAAL. Unlike gains and losses, which reflect actual past experience, assumptions are modified when future expectations about plan experience change. This amounts to taking the effect of future expected gains or losses and building it into the cost today. For that reason, and because of the long-term nature of assumption changes, a plan could be justified in using a longer amortization period than that used for actuarial gains or losses, perhaps in the range of 15 to 25 years.
- ***Amortization of UAAL Due to Plan Amendments*** Because plan amendments are under the control of the plan sponsor, managing contribution volatility is generally *not* a consideration for plan amendments. This means that the primary rationale in selecting the period is to support intergenerational equity by matching the amortization period to the demographics of the participants receiving the benefit. This leads to shorter, demographically based amortization periods. For active participants, this could be the average future working lifetime of the active participants receiving the benefit improvement, while for retirees, this could be the average life expectancy of the retired participants receiving the benefit improvement. This approach would usually result in no longer than a 15-year amortization period for benefit improvements. This is a change from past practice when many plans used a long (*e.g.*, 30-year) period for amortizing the effect of plan amendments.

  It is also advisable to consider any special circumstances that may apply to a specific benefit improvement in determining the appropriate amortization period. For example, early retirement incentives or "windows" generally call for much shorter amortization periods, to better match the period of the economic impact of the retirement incentive.
- ***Amortization of UAAL Due to Surplus*** Although today, with most plans underfunded, the thought of amortizing surpluses may seem irrelevant, the need for caution in treatment of such accumulated gains should be remembered, even if it may be many years before plans actually need to deal with this situation. One of the most significant changes in industry thinking and practice to come from the market experience around the turn of the 21st century is the way surplus is recognized in public pension funding policy. By the late 1990s, as many plans came close to being fully funded or even over-

Negative Amortization

An equitable amortization policy should ensure that the UAAL will be paid off in a reasonable period of time. Long amortization periods can make paying down the UAAL appear more affordable, but, because interest charges accrue and compound on the unpaid UAAL, it is prudent to set amortization periods that are not excessively long. This is especially important where level percent of pay amortization is being used.

With long amortization periods, the UAAL may increase during the early years of the amortization period, even though contributions are being made to amortize the UAAL. This phenomenon, known as "negative amortization," occurs only with level percent of pay amortization. This can happen because, under level percent of pay amortization, the lower early payments can actually be less than interest on the outstanding balance, so that the outstanding balance increases instead of decreases. For typical public plans, this happens whenever the average amortization period is longer than about 16 to 18 years.

While there is nothing inherently wrong with negative amortization in the context of a public plan, stakeholders should be aware of its consequences, especially for amortization periods substantially longer than 20 years.

Negative amortization is of particular concern for plans using open, or rolling, amortization periods. As described above, plans that use open/rolling amortization method "reset" to a new amortization period every year. By contrast, a plan using closed amortization commits to paying down the UAAL over a fixed period.

funded, there was a trend toward amortization periods as short as 10 or even five years. This led to rapid reductions in contributions (to levels even below normal cost) when the large investment gains from that period were recognized over such short periods. The investment losses in the early 2000s abruptly reversed this situation, leading to rapid cost increases. The general conclusion from this experience was that a contribution level less than the normal cost should always be viewed with caution, as ultimately the normal cost will reemerge as the basic cost of the plan. One possible response would be to require that contributions never fall below the normal cost level. However, that would be inconsistent with the actuarial principle that funding policy should target 100-percent funding, and not sustain a level that is either higher or lower than 100 percent. That leads to the general conclusion that surplus should be amortized, but over very long periods such as 30 years.

Each of these potential sources of UAAL deserves individual consideration in setting an amortization policy.

The GASB Effect: Funding Policy in the Spotlight

The Government Accounting Standards Board's proposed revisions to pension accounting standards are also bringing renewed attention to funding policy. First, GASB is proposing a separation of accounting from funding, so that the old rules for determining pension expense will no longer serve as a *de facto* standard for funding policy. Second, GASB is proposing that plans disclose the basis and amount for their "actuarially calculated employer contributions," along with a schedule showing whether those "ACEC" amounts were actually funded. In effect, GASB is leaving it to the plans to develop a funding policy but still requiring comprehensive disclosure of the operation of such a policy. Finally, a key technical point: GASB's new method for setting the discount rate involves a projection of plan assets, including employer contributions "based on current contribution policies and practices."[4] These GASB-related considerations make a review of a plan's funding policy all the more timely.

"The Government Accounting Standards Board's proposed revisions to pension accounting standards are also bringing renewed attention to funding policy."

Conclusion

A comprehensive funding policy is critical to navigating the rough waters surrounding pensions in the current environment. This *Public Sector Letter* identifies some goals and targets to aim for as well as some pitfalls to avoid. A careful review of the approach to funding will enable stakeholders to gain a clearer understanding of costs and to develop a realistic plan to pay these over time.

Funding policies can be modeled under alternative future circumstances that affect valuation results, such as investment returns, demographic changes, or liquidity requirements. Available tools range from a simple sensitivity analysis to a full asset and liability modeling. This latter type of review provides a range of outcomes as to how funding might be impacted under different economic circumstances and can assist in setting both investment strategies and funding policy.

Now is an appropriate time for a funding policy review. In many cases, stakeholders will be reassured about the path they have been following. In others, trustees and plan sponsors may discover that the commitments they have made in the past will require greater contributions. Still others may find that their commitments are no longer affordable and that benefits need to be reevaluated. In any of these scenarios, officials may also conclude that having a comprehensive statement of their funding policy in a single document is advantageous. A well-conceived funding policy can do more than ensure a well-funded plan; it can enlighten benefit policy, an issue that will be discussed in greater detail in a future *Public Sector Letter*.[5]

■ ■ ■

For more information about funding public pension plans, contact your Segal Company consultant or one of the following experts:

- *Paul Angelo, FSA, FCA, MAAA*
  415.263.8273
  pangelo@segalco.com
- *Kim M. Nicholl, FSA, FCA, MAAA, EA*
  312.984.8527
  knicholl@segalco.com
- *Cathie G. Eitelberg*
  202.833.6437
  ceitelberg@segalco.com

[4] For information about GASB's Exposure Draft, see The Segal Company's August 2011 *Bulletin*: http://www.segalco.com/publications/bulletins/aug2011GASB.pdf

[5] Sponsors of public sector pension plans might also be interested in Segal's June 2011 *Public Sector Letter*, "Actual Cost vs. Market Price: Does Market Valuation of Pension Liabilities Fit the Public Sector?": http://www.segalco.com/publications/publicsectorletters/june2011.pdf

Conference of Consulting Actuaries
Public Plans Community (CCA PPC)

Actuarial Funding Policies and Practices for Public Pension Plans

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Advancing the Practice®

Conference of Consulting Actuaries

Public Plans Community

Contents

Paul Angelo

Tom Lowman

An Open Letter

From: Paul Angelo, Chair and Tom Lowman, Vice Chair Conference of Consulting Actuaries Public Plans Community

To: Interested Parties in the Public Pension Arena

Re: Public Plans Community White Paper on Public Pension Funding Policy

On behalf of the Conference of Consulting Actuaries' Public Plans Community (CCA PPC), the following "White Paper" is presented to provide guidance to policymakers and other interested parties on the development of actuarially based funding policies for public pension plans. The CCA PPC includes over 50 leading actuaries whose firms are responsible for the actuarial services provided to the majority of public-sector retirement systems in the US. All of the major actuarial firms serving the public sector are represented in the CCA PPC as well as in-house actuaries from several state plans. As a result, the CCA PPC represents a broad cross section of public-sector actuaries with extensive experience providing valuation and consulting services to public plans, and it is that experience that provides the knowledge base for this paper.

The White Paper is based on over two years of extensive and detailed funding policy discussions among the members of the CCA PPC, and reflects the experience of those members in providing actuarial consulting services to state and local public pension plans throughout the US. While there were naturally disagreements and compromises during those discussions, the White Paper reflects the resulting majority opinions of the CCA PPC as developed through those discussions. We believe this White Paper reflects a substantial consensus among the actuaries who provide valuation and consulting services to public pension plans.

This White Paper represents groundbreaking actuarial research in that it develops a principles based, empirically grounded Level Cost Allocation Model (LCAM) for use as a basis for funding policies for public pension plans throughout the US. In particular, we believe that the funding policies developed herein could serve as a rigorously defensible basis for an "actuarially determined contribution" under Statements 67 and 68 of the Governmental Accounting Standards Board.

The distinguishing feature of this approach is that it is begins with stated policy objectives and then develops specific policy guidance consistent with those objectives. One of the main results is that an effective funding policy often represents a balancing of policy objectives. Another is that adherence to the policy objectives may lead to a narrower range of acceptable practices than is sometimes found in current practice.

The LCAM White Paper is intended to provide guidance not just in the evaluation of particular current policy practices but also in the development of actuarially based funding policies in a consistent and rational manner. For that reason, the reader is strongly encouraged to focus not only on the specific practice guidance but also on the detailed discussions and rationales that lead to that guidance. Also note that while this discussion is comprehensive it is not all-inclusive. There is a list of "items for future discussion" at the end of the paper. In addition, there may be other "level cost allocation models" that are appropriate in some circumstances.

The CCA PPC would like to acknowledge and thank the California Actuarial Advisory Panel for their seminal work in developing the principles-based level cost allocation model on which this White Paper is based. We also thank all the members of the Conference of Consulting Actuaries Public Plans Community who helped in the development of this paper.

Introduction

This "white paper" is based on funding policy discussions among the members of the Conference of Consulting Actuaries Public Plans Community (CCA PPC) and reflects the majority opinions the CCA PPC members[1]. Those discussions relied heavily upon and generally concurred with the funding policy white paper prepared by the California Actuarial Advisory Panel (CAAP) and the level cost allocation model developed therein[2]. For that reason, the CCA PPC has chosen to build directly on the CAAP document in developing its own funding policy guidance.

The CCA PPC wishes to express its sincere appreciation to the CAAP for its seminal work in preparing a principles-based funding policy development. However, while much of the text of this CCA PPC white paper comes directly from the CAAP document, this white paper is presented solely as the majority opinions of the CCA PPC.

This CCA PPC white paper is intended for a national audience, as part of a nation-wide review and discussion of funding policies for public pension plans. Our hope is that the principles and policies developed herein may provide an actuarial basis for others developing funding practices and that legislative, regulatory and other industry groups may build these concepts into their guidance.

This white paper develops the principal elements and parameters of an actuarial funding policy[3] for US public pension plans. It includes the development of a Level Cost Allocation Model (LCAM) as a basis for setting funding policies. This white paper does not address policy issues related to benefit plans where a member's benefits are not funded during the member's

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1 These comments were developed through the coordinated efforts of the Conference of Consulting Actuaries' (CCA) Public Plans Steering Committee. However, these comments do not necessarily reflect the views of the CCA, the CCA's members, or any employers of CCA members, and should not be construed as being endorsed by any of those parties.

2 See "Actuarial Funding Policies and Practices for Public Pension and OPEB Plans and Level Cost Allocation Model" at http://www.sco.ca.gov/caap_resources.html

3 As used in this paper, an "actuarial funding policy" has the same meaning as a "Contribution Allocation Procedure" as defined in the Actuarial Standards of Practice (ASOPs). We further note that the actuarial policies that determine the level and timing of contributions must also include policies related to setting the actuarial assumptions. As noted at the end of this section, this paper does not address policies and practices related to setting actuarial assumptions.

working career, e.g., plans receiving "pay-as-you-go" funding or "terminal" funding.

While this white paper develops guidance primarily for pension plans, we believe the general policy objectives presented here are applicable to the funding of OPEB plans as well. However, application of those policy objectives to OPEB plans may result in different specific funding policies based on plan design, legal status and other features distinctive to OPEB plans. We encourage those involved in the valuation and funding of OPEB plans to consider the applicability to those plans of the policy guidance developed here.

Some pension plans have contributions rates that are set on a fixed basis, rather than being regularly reset to a specific, actuarially determined rate. The CCA PPC believes that such plans should develop an actuarially determined contribution rate for comparison to the fixed rate. However, this white paper does not address procedures for evaluating that comparison, or for determining whether the fixed rate is sufficient or when and how the fixed rate should be changed. The CCA PPC intends to prepare a separate white paper on fixed rate plans including these considerations.

As developed here the LCAM is a level cost actuarial methodology[4], which is consistent with well-established actuarial practice. The LCAM is a principles-based mathematical model of pension cost. The model policy elements are developed in a logical sequence based on stated general policy objectives, and in a manner consistent with primary factors that affect the cost of the pension obligation.

The particular model that we develop is based on a combination of policy objectives and policy elements that has been tested over many years and, we believe, is well understood and broadly applicable. However, there are other models and policy objectives that practitioners may use that are internally consistent and may be as appropriate in some circumstances as the model that is developed herein, and it is not our intention to discourage consideration of such other policies[5]. Furthermore, there are situations where the policy parameters developed herein may require additional analysis to establish the appropriate parameters for each such situation[6]. It is up to the actuary to apply professional judgment to the particulars of the situation and recommend the most appropriate policies for that situation, including considerations of materiality.

Our approach begins with identifying the policy objectives of such a funding policy, and then evaluating the structure and parameters for each of the particular policy elements in a manner consistent with those objectives, as well as with current and emerging actuarial science and governing actuarial standards of practice.

This white paper is intended as advice to actuaries and retirement boards[7] in the setting of funding policy. While the analysis is somewhat restrictive in the categorization of practices, this guidance is not intended to supplant or replace the applicable Actuarial Standards of Practice (ASOPs). Like all opinions of the CCA PPC, this guidance is nonbinding and advisory only. Furthermore, it is not intended as a basis for litigation, and should not be referenced in a litigation context.

Given the wide range of such policies currently in practice in the U.S., this development also acknowledges that plan sponsors and retirement boards may require some level of policy flexibility

4 Here a "level cost actuarial methodology" is characterized by economic assumptions based on the long term expected experience of the plan and a cost allocation designed to produce a level cost over an employee's active service. This is in contrast to a "market-consistent" actuarial methodology where economic assumptions are based on observations of current market interest rates, and costs are allocated based on the (non-level) present value of an employee's accrued benefit.

5 In particular, the LCAM developed here incorporates the widely prevalent practice of managing asset volatility directly through the use of an asset smoothing policy element. Some practitioners are developing direct contribution rate smoothing techniques as an alternative to asset smoothing. The CCA PPC is considering development of a separate white paper on direct smoothing as an alternative to asset smoothing.

6 For example, plans that are closed to new entrants may require additional analyses and forecasts to determine whether the policy parameters herein provide for adequate funding.

7 Here "retirement boards" is meant to refer generally to whatever governing bodies have authority to set funding policy for public sector plans.

to reflect both their specific policy objectives and their individual circumstances. To accommodate that need for reasonable flexibility and yet also provide substantive guidance, this development evaluates various policy element structures and parameters or ranges according to the following categories:

- LCAM Model practices (i.e., practices most consistent with the LCAM developed herein)
- Acceptable practices
- Acceptable practices, with conditions
- Non-recommended practices
- Unacceptable practices.

These categories are best understood in the context of the different elements that comprise an actuarial funding policy and the various policy alternatives for each of those policy elements. They are intended to assist in the evaluation of specific policy elements and parameters relative to the general policy objectives stated herein, and are developed separately for each of the three principal policy elements discussed in this white paper (cost methods, asset smoothing methods and amortization policy). They are not intended as a grading or scoring mechanism for a system's overall actuarial funding policy.

Generally, throughout this discussion, "model practices" means those practices most consistent with general policy objectives and the LCAM as developed here based on those policy objectives[8]. Acceptable practices are generally those that while not fully consistent with the LCAM as developed here, are well established in practice and typically do not require additional analysis to demonstrate their consistency with the general policy objectives. Practices that are acceptable with conditions may be acceptable in some circumstances, on the basis of additional analysis to show consistency with the general policy objectives or to address risks or concerns associated with the practices. Systems that adopt practices that under this model analysis are not recommended should consider doing so with the understanding that they reflect policy objectives different from those on which this LCAM is based or should consider the policy concerns identified herein.

This evaluation of practice elements and parameters was developed in relation to the LCAM and its general policy objectives, based on experience with the many independent public plans sponsored by states, counties, cities and other local public employers in the US, and is intended to have general applicability to such plans. However, for some plans, special circumstances or situations may apply. The specific applicability of the results developed here should be evaluated by their governing boards based on the advice of their actuaries.

Note that while the selection of actuarial assumptions is an essential part of actuarial policy for a public sector pension plan, the selection of actuarial assumptions is outside the scope of this discussion. For example, a pension plan should perform a comprehensive review of both economic and demographic assumptions on a regular basis as part of its actuarial policies. Another important consideration in determining a plan's funding requirements is the plan's investment policy and related investment portfolio risks. While actuarial assumptions, plan investments and even benefit design are all elements that affect funding requirements, they are beyond the scope of this paper.

This white paper is also not intended to address the measurement of liabilities for purposes other than funding, e.g., settlement obligations or other market-consistent measures[9].

Finally note that some retirement systems have features that may require funding policy provisions and analyses that are not specifically addressed herein. One example is systems with "gain sharing" provisions whereby favorable investment experience is used as the basis for increasing member benefits and/or reducing employer and/or member contributions. The policies developed here should not be interpreted as being adequate to address these plan features without additional analysis specific to those features.

8 Some commentators have interpreted "model practices" as synonymous with "best practices." That is not the intent of this categorization of practices. Given their circumstances retirement boards may find that other practices, particularly those categorized and acceptable or acceptable with conditions, are considered both appropriate and reasonably consistent with the policy objectives stated herein.

9 See footnote 4

Transition Policies

In order to avoid undue disruption to a sponsor's budget, it may not be feasible to adopt policies consistent with this white paper without some sort of transition from current policies. For example, a plan using longer than model amortization periods could adopt model periods for future unfunded liabilities while continuing the current (declining) periods for the current unfunded liabilities. Such transition policies should be developed with the advice of the actuary in a manner consistent with the principles developed herein. We have included in our discussion transition policies appropriate to each of the principal policy elements.

General Policy Objectives

The following are policy objectives that apply generally to all elements of the funding policy. Objectives specific to each principal policy element are identified in the discussion of that policy element.

1. The principal goal of a funding policy is that future contributions and current plan assets should be sufficient to provide for all benefits expected to be paid to members and their beneficiaries when due.
2. The funding policy should seek a reasonable allocation of the cost of benefits and the required funding to the years of service (i.e. demographic matching). This includes the goal that annual contributions should, to the extent reasonably possible, maintain a close relationship to the both the expected cost of each year of service and to variations around that expected cost.
3. The funding policy should seek to manage and control future contribution volatility (i.e., have costs emerge as a level percentage of payroll) to the extent reasonably possible, consistent with other policy goals.
4. The funding policy should support the general public policy goals of accountability and transparency. While these terms can be difficult to define in general, here the meaning includes that each element of the funding policy should be clear both as to intent and effect, and that each should allow an assessment of whether, how and when the plan sponsor is expected to meet the funding requirements of the plan.
5. The funding policy should take into consideration the nature of public sector pension plans and their governance. These governance issues include (1) agency risk issues associated with the desire of interested parties (agents) to influence the cost calculations in directions viewed as consistent with their particular interests, and (2) the need for a sustained budgeting commitment from plan sponsors.

Policy objective 1 means that contributions should include the cost of current service plus a series of amortization payments or credits to fully fund or recognize any unfunded or overfunded past service costs (note that the latter is often described as “Surplus”).

Policy objectives 2 and 3 reflect two aspects of the general policy objective of interperiod equity (IPE). The “demographic matching” goal of policy objective 2 promotes intergenerational IPE, which seeks to have each generation of taxpayers incur the cost of benefits for the employees who provide services

to those taxpayers, rather than deferring those costs to future taxpayers. The "volatility management" goal of policy objective 3 promotes period-to-period IPE, which seeks to have the cost incurred by taxpayers in any period compare equitably to the cost for just before and after.

These two aspects of IPE will tend to move funding policy in opposite directions. Thus the combined effect of policy objectives 2 and 3 is to seek an appropriate balance between intergenerational and period-to-period IPE, that is, between demographic matching and volatility management.

Policy objective 3 (and the resulting objective of balancing policy objectives 2 and 3) depends on the presumed ongoing status of the public sector plan and its sponsors. The level of volatility management appropriate to a funding policy may be less for plans where this presumption does not apply, e.g., plans that are closed to new entrants.

Policy objective 4 will generally favor policies that allow a clear identification and understanding of the distinct role of each policy component in managing both the expected cost of current service and any unexpected variations in those costs, as measured by any unfunded or overfunded past service costs. Such policies can enhance the credibility and objectivity of the cost calculations, which is also supportive of policy objective 5.

Policy objective 5 seeks to enhance a retirement board's ability to resist and defend against efforts to influence the determination of plan costs in a manner or direction inconsistent with the other policy objectives. This favors policies based on a cost model where the parameters are set in reference to factors that affect costs rather than the particular cost result. This separation between the selection of model parameters and the resulting costs enhances the objectivity of the cost results. As a result, any attempt to influence those results must address the objective parameters rather than the cost result itself.

A common example of agency risk is that, because plan sponsors may be more aware of and responsive to the interests of current versus future taxpayers, there may be incentives to defer necessary contributions to future periods. This may be countered by avoiding policy changes that selectively reduce contributions.

For plans with an ongoing service cost for active members, policy objective 5 also reflects a policy objective to avoid encumbering for other uses the budgetary resources necessary to support that ongoing service cost. This introduces an asymmetry between funding policies for unfunded liabilities versus surpluses, which is discussed in the policy development for surplus amortization.

Note that the model funding policies developed here are substantially driven by these policy objectives. In some situations other plan features or policies (e.g., investment policy, reserving requirements, and plan maturity) may also be a consideration in setting funding policy. Such considerations are not addressed in this analysis.

Principal Elements of Actuarial Funding Policy

The type of comprehensive actuarial funding policy developed here is made up of three components:

1. An **actuarial cost method**, which allocates the total present value of future benefits to each year (Normal Cost) including all past years (Actuarial Accrued Liability or AAL).
2. An **asset smoothing method**, which reduces the effect of short term market volatility while still tracking the overall movement of the market value of plan assets.
3. An **amortization policy**, which determines the length of time and the structure of the increase or decrease in contributions required to systematically (1) fund any Unfunded Actuarial Accrued Liability or UAAL, or (2) recognize any Surplus, i.e., any assets in excess of the AAL.

An actuarial funding policy can also include some form of "direct rate smoothing" in addition to both asset smoothing and UAAL/Surplus amortization. Two types of this form of direct rate smoothing policies were evaluated for this development:

1. Phase-in of certain extraordinary changes in contribution rates, e.g., phasing-in the effect of assumption changes element over a three year period.
2. Contribution "collar" where contribution rate changes are limited to a specified amount or percentage from year to year.

As noted earlier, it is also possible to use direct contribution rate smoothing techniques as an *alternative* to asset smoothing, rather than in addition to asset smoothing. While that approach is outside the scope of this discussion, the CCA PPC is considering development of a separate white paper on direct rate smoothing as an alternative to asset smoothing.

Actuarial Cost Method

The Actuarial Cost Method allocates the total present value of future benefits to each year (Normal Cost) including all past years (Actuarial Accrued Liability[1] or AAL).

Specific policy objectives and considerations

1. Each participant's benefit should be funded under a reasonable allocation method by the expected retirement date(s), assuming all assumptions are met.
2. Pay-related benefit costs should reflect anticipated pay at anticipated decrement.
3. The expected cost of each year of service (generally known as the Normal Cost or service cost) for each active member should be reasonably related to the expected cost of that member's benefit.
4. The member's Normal Cost should emerge as a level percentage of member compensation[2].
5. No gains or losses should occur if all assumptions are met, except for:
    a. Investment gains and losses deferred under an asset smoothing method consistent with these model practices, or
    b. Contribution losses or gains due to a routine lag between the actuarial valuation date and the date that any new contributions rates are implemented, or
    c. Contribution losses or gains due to the phase-in of a contribution increase or decrease.
6. The cost method should allow for a comparison between plan assets and the accumulated value of past Normal Costs for current participants, generally known as the Actuarial Accrued Liability (AAL).

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1 Here "liability" indicates that this is a measure of the accrued (normal) cost while "actuarial" distinguishes this from other possible measures of liability: legal, accounting, etc.

2 This objective applies most clearly to benefits (like, for example, most public pension benefits) that are determined and budgeted for as a percentage of individual and aggregate salary, respectively. For benefits that are not pay related it may be appropriate to modify this objective and the resulting policies accordingly.

Discussion

1. Any actuarial cost model for retirement benefits begins with construction of a series or array of Normal Costs that, if funded each year, under certain stability conditions will be sufficient to fund all projected benefits for current active members. The following considerations serve to specify the cost model developed here.

    a. The usual stability conditions are that the current benefit structures and actuarial assumptions have always been in effect, the benefit structures will remain in effect, and future experience will match the actuarial assumptions. Special considerations apply if in the past the benefit structure has been changed for current active members changing the benefits for members with service after some fixed date.

    b. Consistent with Cost Method policy objective #3 and with the general policy objective of transparency, the Normal Cost for each member is based on the benefit structure for that member. This means that a separate Normal Cost array is developed for each tier of benefits within a plan. This argues against Ultimate Entry Age, where Normal Cost is based on an open tier of benefits even for members not in that open tier.

    c. Consistent with Cost Method policy objective #4, the Normal Cost is developed as a level percentage of pay for each member, so that the Normal Cost rate for each member (as a percentage of pay) is designed to be the same for all years of service. This provides for a more stable Normal Cost rate for the benefit tier in case of changing active member demographics. This argues against Projected Unit Credit.

    d. Also consistent with Cost Method policy objective #4, the Normal Cost for all types of benefits incurred at all ages is developed as a level percentage of the member's career compensation. This argues against funding to decrement. For plans with a DROP (Deferred Retirement Option Program) this also argues for allocating Normal Cost over all years of employment, including those after a member enters a DROP.

    e. Consistent with Cost Method policy objective #6, the Normal Cost is developed independent of plan assets, and the Actuarial Accrued Liability (and so also the UAAL) is based on the Normal Costs developed for past years. This argues against Aggregate and FIL as model practices.

        i. These methods should be considered as a fundamentally different approach to the determination and funding of variations from Normal Cost.

        ii. Plans using these methods should also measure and disclose costs and liabilities under the Entry Age method, similar to the requirements of current accounting standards.

    f. Historical practice includes the use of a variation of the Entry Age method (an "Aggregated" Entry Age method) where the Normal Cost and AAL are first determined for each member in a tier of benefits under the usual Entry Age method. However, the actual Normal Cost for the tier is then determined as the Normal Cost rate for the tier applied to the compensation for the tier, where the Normal Cost rate for the tier of benefits is determined as the present value of future Normal Costs for all active members in the tier, divided by the present value of compensation for all members in the tier.

        i. This variation introduces an inconsistency between the Normal Cost that is funded and the Normal Cost on which the AAL is based.

        ii. This inconsistency can be shown to produce small but systematic gains or losses, generally losses.

2. Consistent with all the above, under the cost model developed here the Normal Cost rate would change only when the projected benefits for the tier change either in amounts or in present value.
    a. The Normal Cost rate (both in total and by member) will vary from valuation to valuation due to demographic experience and assumption changes.
    b. The Normal Cost rate will not change when an individual member reaches an age or service where, under the consistent benefit structure for the member's tier, the member's benefit eligibility or accrual rate changes. This is because that event was anticipated in the projected benefits for the tier, so that the projected benefits are substantially unaffected by such predictable changes in eligibility or benefit accrual.
    c. Similarly the Normal Cost rate for a member should be unaffected by the closing of the member's tier and the creation of a new tier for future hires, as discussed under item 1.b above.
    d. However, if the benefit structure of a continuing, open tier is changed for members with service after some fixed date, then the Normal Cost rate should change to reflect the unanticipated change in projected benefits for members in the tier[3]. This calls for an extension or variation of the Entry Age method in order to value this type of benefit change.
        i. There are two methods in practice to adjust the Normal Cost rate for this type of plan change. While a detailed analysis of these two variations is beyond the scope of this discussion, our summary conclusions are:
            A. The "replacement life" Entry Age method would base the Normal Cost on the new benefit structure as though it had always been in place, thereby producing a consistent Normal Cost rate for all members in the tier. This has the advantages of a change in Normal Cost (both individual and total) more consistent with what would be expected for a change in future benefit accruals, a stable future Normal Cost rate for the tier and a relatively smaller (compared to the alternative) change in Actuarial Accrued Liability. Its disadvantages are that it may be more complicated to explain and to implement.
            B. The "averaged" Entry Age method would base each member's Normal Cost on the new projected benefit for that member, thereby producing a different Normal Cost rate for different members in the tier, based generally on their service at the time of the change in benefit structure. The advantages and disadvantages are essentially the reverse of those for the replacement life version of Entry Age. The change in Normal Cost is less than what would be expected for a change in future benefit accruals, the future Normal Cost rate for the tier will be unstable (as it eventually reaches the same rate as under the replacement life variation) and there is a relatively larger (compared to the alternative) change in Actuarial Accrued Liability. Its advantages are that it may be less complicated to explain and to implement (where the latter may depend on the valuation software used).
3. While not recommended for funding, the Normal Cost under the Ultimate Entry Age method discussed above may nonetheless be useful when a new open tier is adopted for future hires. The combined normal cost rate for the open and closed tiers (as determined under the LCAM Entry Age method) will change over time as members of the closed tier are replaced by members in the new tier. This will result in an increasing or decreasing

3 Note that, as of this writing, for public sector pension plans this is relatively uncommon because of legal protections that are understood to apply both to accrued benefits and to future benefit accruals for current members.

combined normal cost rate (depending on whether the new tier has higher or lower benefits), consistent with the transition of the workforce over time to the new benefit level. However, the Ultimate Entry Age method Normal Cost for the combined tiers will reflect the expected long term Normal Cost for the entire workforce (unlike the LCAM Normal Cost which reflects only the recent hires in the new tier). For that reason, Normal Cost under Ultimate Entry Age may be useful for projecting longer-term costs or for evaluating a fixed contribution rate.

Practices

Based on the above discussion, and consistent with the policy objectives, actuarial cost methods and parameters are categorized as follows:

LCAM Model Practices

- Entry Age cost method with level percentage of pay Normal Cost.
  - Normal Costs are level even if benefit accrual or eligibility changes with age or service.
  - All types and incidences of benefits are funded over a single measure of expected future service[4].
  - The Normal Cost for a tier of benefits is the sum of the individually determined Normal Costs for all members in that tier.
  - Exception: for plans with benefits unrelated to compensation the Entry Age method with level dollar Normal Cost may be more appropriate.
- For multiple tiers:
  - Normal Cost is based on each member's benefit.
- For benefit formula or structure changes within a tier (generally after a fixed date):
  - Normal Cost is based on current benefit structure (replacement life Entry Age[5]).

Acceptable Practices

- Aggregate cost method: Plans using the Aggregate method should disclose costs and liabilities determined under the Entry Age method.
  - Calculate Normal Cost and UAAL under Entry Age method.
  - Determine single amortization period for the Entry Age UAAL that, combined with the Entry Age Normal Cost, is equivalent to Aggregate method Normal Cost.
- Frozen Initial Liability cost method: This method should disclose costs and liabilities under the Entry Age method.
  - Calculate Normal Cost and UAAL under Entry Age method.
  - Deduct the FIL amortization bases from the Entry Age UAAL.
  - Determine single amortization period for the remaining Entry Age UAAL that, combined with the Entry Age Normal Cost, is equivalent to FIL method Normal Cost.
- Funding to Decrement Entry Age method, where each type and incidence of benefit is funded to each age at decrement.
  - This method may be appropriate for some plan designs or for plans closed to new entrants[6].
- For benefit formula or structure changes within a tier (generally after a fixed date):

4 Under the LCAM model practice, Normal Cost is allocated over service that continues until the member is no longer working. For active members in or expected to enter a DROP (Deferred Retirement Option Program) this includes service through the expected end of the DROP period. This is not the method adopted by GASB in Statements 67 and 68, where service cost is allocated only through the beginning of the DROP period. The GASB method for DROPs is categorized as an Acceptable Practice for funding.

5 Note that this is not the method used in GASB's Statements 67 and 68. The GASB method is categorized as an Acceptable Practice.

6 For example, a Plan that provides very valuable early career-benefits (such as heavily subsidized early retirement or disability benefits) may prefer to have the higher early-career Normal Costs associated with the Funding to Decrement Entry Age method.

- Normal Cost is based on each member's composite projected benefit (averaged Entry Age[7]).

Acceptable Practices, with Conditions

- Projected Unit Credit cost method.
- Entry Age method variation ("Aggregated" Entry Age method) where the Normal Cost for a tier of benefits is determined as the Normal Cost rate for the tier applied to the compensation for the tier, and where the Normal Cost rate for the tier of benefits is determined as the present value of future Normal Costs for all active members in the tier, divided by the present value of compensation for all members in the tier.
- Aggregate or Frozen Initial Liability methods without the disclosures of costs and liabilities determined under the Entry Age method discussed above.

Non-recommended Practices

- Normal Cost based on open tier of benefits even for members not in that open tier (Ultimate Entry Age).
  - Ultimate Entry Age Normal Cost may be useful to illustrate the longer-term Normal Cost for combined tiers or to evaluate fixed contribution rates.

Unacceptable Practices

- Traditional (non-Projected) Unit Credit cost method for plans with pay-related benefits as the primary benefit.
- Note that while this white paper does not address policy issues related to pay-as-you-go funding or terminal funding, such practices would be unacceptable if the policy intent is to fund the members' benefits during the members' working careers.

Transition Policies

- There are no transition policies that apply to funding methods. For substantial method changes (e.g., changing from Projected Unit Credit to Entry Age) special amortization periods could apply. These are discussed in the section on Amortization Policy.

7 Note that this is the version of the Entry Age method required for financial reporting under GASB Statements 67 and 68 for plans with benefit formula or structure changes within a tier.

Asset Smoothing Methods

An asset smoothing method reduces the effect of short term market volatility while still tracking the overall movement of the market value of plan assets.

Specific policy objectives and considerations

1. The funding policy should specify all components of asset smoothing method:
    a. Amount of return subject to deferred recognition (smoothing).
    b. The smoothing period or periods.
    c. The range constraints on smoothed value (market value corridor), if any.
    d. The method of recognizing deferred amounts: fixed or rolling smoothing periods.
2. The asset smoothing method should be unbiased relative to market.
    a. The same smoothing period should be used for gains and for losses.
    b. Any market value corridor should be symmetrical around market value.
3. The asset smoothing method should not be selectively reset at market value only when market value is greater than actuarial value.
    a. Bases may be combined but solely to reduce future, non-level recognition of relatively small net unrecognized past gains and losses (i.e., when the smoothed and market values are already relatively close together).
4. The asset smoothing method should be unbiased relative to realized vs unrealized gain loss.
    a. Base deferrals on total return gain/loss relative to assumed earnings rate.
5. The asset smoothing method should incorporate the ASOP 44 concepts of:
    a. Likely to return to market in a reasonable period and likely to stay within a reasonable range of market, or
    b. Sufficiently short period to return to market or sufficiently narrow range around market.
6. The policy parameters should reflect empirical experience from historical market volatility.
7. The asset smoothing method should support the policy goal of

demographic matching (the intergenerational aspect of interperiod equity) described in general policy objective 2. This leads to a preference for smoothing methods that provide for full recognition of deferred gains and losses in the UAAL by some date certain.

a. Note that this objective is also consistent with the accountability and transparency goals described in general policy objective 4.

Discussion

1. Longer smoothing periods generally reduce contribution volatility. A discussion of smoothing periods could include the following considerations:
    a. To the extent that smoothing periods are considered as being tied to economic or market cycles, those cycles may be believed to be longer or shorter than in past years.
    b. If markets are more volatile, then longer smoothing would be needed even if only to maintain former levels of contribution stability.
    c. Better funded plans, more mature plans and higher benefit plans (i.e., plans with a higher "volatility index") have inherently more volatile contribution rates, so may justify longer smoothing.
    d. Sponsors may be more sensitive to contribution volatility.
2. However, ASOP 44 implies that longer smoothing periods call for narrower market value corridors.
    a. In effect, the corridor imposes a demographic matching style constraint on the use of longer smoothing periods which otherwise would obtain greater volatility management.
3. The model interpretation is that five year smoothing is "sufficiently short" under ASOP 44.
    a. This reflects long and consistent industry practice, as well as GASB Statement 68.
    b. This implies that five year smoothing with no market value corridor is ASOP compliant.
    c. It still may be useful to have a market value corridor as part of the asset smoothing policy.
        i. This avoids having to introduce the corridor structure in reaction to some future discussion of longer smoothing periods.
4. Consider the extensive data available on the impact of smoothing periods and market value corridors after large market downturn (such as occurred in 2008).
    a. The smoothing method manages the transition from periods of lower cost to periods of higher cost.
        i. The level of those higher costs is determined primarily by size of the market loss and UAAL amortization period, not the asset smoothing policy.
    b. The smoothing period determines length of the transition period.
    c. The market value corridor determines cost pattern during the transition.
        i. A wide corridor or no corridor produces a straight line transition.
        ii. "Hitting the corridor" accelerates the cost increases or decreases in early years of transition.
            A. In effect the corridor inhibits the smoothing method after years of large losses (or gains).
        iii. There are various possible policy justifications for such an accelerated transition.
            A. Market timing: get more contributions in while the market is down.
            B. Cash flow management: low market values may impair plan liquidity.
            C. Employer solvency: if the employer eventually is going to default on making contributions, then get as much contribution income as possible before that happens.
            D. Employer preference: employers may prefer to have the higher costs in their rates as soon as possible.

iv. Following the 2008 market decline, these justifications were generally not found to be compelling.

A. The normal lag in implementing new contributions rates defeats iii. A and B.

B. Employers are presumed solvent and if not, accelerating contributions would make things worse.

C. Many employers clearly preferred more time to absorb the contribution increases.

v. Absent these considerations, 2008 experience argues for permitting a wide corridor with a five year smoothing period, based on the fact that five year smoothing produced actuarial value to market value ratios that exceeded 140%.

A. Projections in early 2009 actually showed these ratios could have been as high as 150% if markets had not recovered some before the June 30, 2009 valuations.

5. Other industry indicators for market corridor selection with long smoothing periods

a. CalPERS 2005 policy: 15 year rolling smoothing with 20% corridor.

6. Structural issue: Fixed, separate smoothing periods vs. a single, rolling smoothing period

a. Fixed, separate smoothing periods for each year of market gain or loss insure that all deferred gains and losses are included in the UAAL (and so in the contribution rates) by a known date. This is consistent with accountability and with demographic matching.

b. A single rolling smoothing period avoids "tail volatility" where contributions are volatile not only when gains and losses first occur but also when (under a layered approach) each year's gain or loss is fully recognized.

i. Rolling smoothing is consistent with volatility management but substantially extends the recognition period for deferred investment gains and losses.

A. This will extend the time when the actuarial value of assets is consistently above or below the market value of assets.

B. That argues for narrower corridors than are appropriate for fixed (layered) smoothing periods.

ii. In effect, rolling smoothing recognized a fixed percentage of deferred investment gains and losses each year.

A. For example, 5 year rolling amortization recognizes 20% of the deferred amount.

B. Base corridors on this deferral recognition percentage.

c. With fixed, separate smoothing periods, tail volatility due to alternating periods of market gains and losses can be controlled by limited active management of the separate deferral amounts.

i. One such adjustment involves combining the separate deferral amounts when the net deferral amount is relatively small (i.e., the smoothed and market values are very close together) but the recognition pattern of that net deferral is markedly non-level.

A. The net deferral amount is unchanged as of the date of the adjustment.

B. The period over which the net deferral amount is fully recognized is unchanged as of the date of the adjustment.

ii. Other uses of active management of the deferral amounts may add complexity to the application of the policy and may reduce transparency.

iii. Restarts of fixed, separate smoothing periods should not be used:

A. Too frequently, as this would produce a de facto rolling smoothing period, or

B. To selectively restart smoothing at market value only when market value is greater than smoothed value. This would violate General Policy Objective 5, since it would selectively change the policy only when the effect is to reduce contributions.

Practices

Based on the above discussion, and consistent with the policy objectives, asset smoothing methods and parameters are categorized as follows:

LCAM Model Practices

- Deferrals based on total return gain/loss relative to assumed earnings rate.
- Deferrals recognized in smoothed value over fixed smoothing periods not less than 3 years.
- Maximum market value corridors for various smoothing periods:
  - 5 or fewer years, 50%/150% corridor.
  - 7 years, 60%/140% corridor.
  - 10 years, 70%/130% corridor.
- Five year (or shorter) smoothing with no corridor (including use of market value of assets without smoothing).
- Rolling smoothing periods with the following maximum market value corridors for various smoothing periods:
  - Express rolling smoothing period as a percentage recognition of deferred amount and set corridor at that same percentage. For example:
    - 3 year rolling smoothing means 33% recognition, with a 33% corridor.
    - 4 year rolling smoothing means 25% recognition, with a 25% corridor.
    - 5 year rolling smoothing means 20% recognition, with a 20% corridor.
    - 10 year rolling smoothing means 10% recognition, with a 10% corridor.
  - Perform additional analysis including projections of when the actuarial value is expected to return to within some narrow range of market value.
- Combine smoothing periods or restart smoothing only to manage tail volatility.
  - Appropriate when the net deferral amount is relatively small (i.e., the actuarial and market values are very close together).
    - The net deferral amount is unchanged as of the date of the adjustment.
    - The period over which the net deferral amount is fully recognized is unchanged as of the date of the adjustment.
  - Avoid using frequent restart of smoothing to achieve de facto rolling smoothing.
  - Avoid restarting smoothing only accelerate recognition of deferred gains, i.e., only when market value is greater than actuarial value.
- Additional analysis, such as solvency projections, is likely to be appropriate for closed plans.

Acceptable Practices

- Maximum market value corridors for various smoothing periods:
  - 15 years, 80%/120% corridor.

Acceptable Practices, with Conditions

- Maximum market value corridors for various smoothing periods:
  - 15 years, 80%/120% corridor.

Non-recommended Practices

- Longer than 5 year smoothing with no corridor.
- 15 years or shorter smoothing with corridors wider than shown above.

Unacceptable Practices

- Smoothing periods longer than 15 years

Transition Policies

Generally, transition policies for asset smoothing would allow current layered smoothing to continue subject to the appropriate model corridors (as determined by the future smoothing periods, if changed from the past/current layers). Transition from rolling asset smoothing would fix the rolling layer at its current period.

Amortization Policy

An amortization policy determines the length of time and the structure of the increase or decrease in contributions required to systematically (1) fund any Unfunded Actuarial Accrued Liability or UAAL, or (2) recognize any Surplus, i.e., any assets in excess of the AAL.

Specific policy objectives and considerations

1. Variations in contribution requirements from simply funding the Normal Cost will generally arise from gains or losses, method or assumption changes or benefit changes and will emerge as a UAAL or Surplus. As discussed in the general policy objectives, such variations should be funded over periods consistent with an appropriate balance between the policy objectives of demographic matching and volatility management.
2. As with the Normal Cost, the cost for changes in UAAL should emerge as a level percentage of member compensation[8].
3. The amortization policy should reflect explicit consideration of these different sources of change in UAAL, even if the resulting policy treats different changes in the same way:
    a. Experience gains and losses.
    b. Changes in assumptions and methods.
    c. Benefit or plan changes.
4. The amortization policy should reflect explicit consideration of the level and duration of negative amortization, if any.
    a. This consideration should not necessarily preclude some negative amortization that may occur under an amortization policy that is otherwise consistent with the policy objectives.
    b. Amortization periods developed in consideration of negative amortization (along with other policy goals) may be relevant for level dollar amortization (where negative amortization does not occur).
5. The amortization policy should support the general policy objectives of

8 As with the Normal Cost, this amortization policy objective applies most clearly to benefits (like, for example, most public pension benefits) that are determined and budgeted for as a percentage of individual and aggregate salary, respectively. For benefits that are not pay related, or when costs are budgeted on a basis other than compensation it may be appropriate to modify this objective and the resulting policies accordingly.

accountability and transparency. This leads to a preference for:

   a. Amortization policies that reflect a history of the sources and treatment of UAAL.

   b. Amortization policies that provide for a full amortization date for UAAL.

      i. Note that this objective is also consistent with the demographic matching aspect of general policy objective 2.

6. The amortization of Surplus requires special consideration, consistent with general policy objective 5 (nature of public plan governance).

   a. Amortization of Surplus should be considered as part of a broader discussion of Surplus management techniques, including:

      i. Excluding some level of Surplus from amortization.

      ii. "Derisking" some portion of plan liabilities by changing asset allocation.

Discussion

1. The policy objectives lead to a general preference for level percentage of pay amortization.

   a. Consistent with policy objectives and with the Normal Cost under the Model Actuarial Cost Method.

   b, This discussion of amortization periods presumes level percentage amortization. Level dollar amortization is discussed separately as an alternative to level percentage amortization.

2. The policy objectives lead to a general preference for multiple, fixed amortization layers.

   a. Fixed period amortization is clearly better for accountability, since UAAL is funded as of a date certain.

   b. Single layer, fixed period amortization is not a stable policy, since period would have to be restarted when remaining period gets too short.

   c. Multiple layer amortization is also more transparent, since it tracks the UAAL by source. However, layered amortization is more complicated and can require additional policy actions to achieve stable contribution rates (including active management of the bases).

   d. Discussion of periods will assume multiple, fixed amortization and then revisit the use of rolling periods to manage volatility.

3. For gains and losses, balancing demographic matching and volatility control leads to an ideal amortization period range of 15 to 20 years.

   a. Lesson learned from the 1990s is that less than 15 years gives too little "volatility control", especially for gains.

      i. Short amortization of gains led to partial contribution holidays (contributions less than Normal Cost) and even full contribution holidays (no contribution required).

      ii. This is inconsistent with general policy objective 5, in that it led to insufficient budgeting for ongoing pension costs and to pressure for benefit increases.

   b. Longer than 20 years becomes difficult to reconcile with demographic matching, the intergenerational aspect of interperiod equity described in general policy objective 2.

      i. 20 years is substantially longer than either average future service for actives or average life expectancy for retirees.

   c. Periods longer than 20 years also entail negative amortization (which starts at around 16 to 18 years for many current combinations of assumptions)[9].

      i. Here negative amortization is an indicator for not enough demographic matching but based on economic rather than demographic assumptions.

9 Note that for emerging lower investment return and salary increase assumptions even twenty year amortization may entail no negative amortization.

ii. Consider observed consistency between the period of onset of negative amortization and the periods related to member demographics.

iii. As discussed later in this section, negative amortization is a much greater concern when using open or rolling amortization periods.

d, Two case studies — CalPERS and GASB:

i. CalPERS 2005 analysis focused on volatility management. Resulting funding policy uses exceptionally long periods for gain and loss amortization (as well as for asset smoothing.)

ii. GASB Statements 67 and 68 focus on demographic matching. Resulting expensing policy uses very short recognition periods. (This is cited for comparison only, as the GASB statements govern financial reporting and not funding.)

iii. Our general policy objectives indicate a balance between these two extremes.

4. For assumption changes, while the amortization periods could be the same, a case can be made for longer amortization than for gain/loss, since liabilities are remeasured to anticipate multiple years of future gains or losses.

a. A similar or even stronger case for longer periods could be made for changing cost method (such as from Projected Unit Credit to Entry Age), or for the initial liability for a newly funded plan.

b. However longer than 25 years entails substantial (arguably too much) negative amortization.

5. For plan amendments that increase liabilities, volatility management is not an issue, only demographic matching.

a. Use actual remaining active future service or retiree life expectancy.

b. Could use up to 15 years as an approximation for actives.

i. Any period that would entail negative amortization is inconsistent with general policy goals 2 (demographic matching) and 5 (nature of public plan governance).

c. Could use up to 10 years as an approximation for inactives.

i. Particularly for retiree benefit increases, amortization period should control for negative cash flow where additional amortization payments are less than additional benefit payments.

d. For Early Retirement Incentive Programs use a period corresponding to the period of economic savings to the employer.

i. Shorter than other plan amendments, typically no more than five years[10]

e. For benefit improvements with accelerated payments (e.g. one time "13th check" or other lump sum payments) amortization may not be appropriate as any amortization will result in negative cash flows.

6. Plan amendments that reduce liabilities require separate considerations so as to avoid taking credit for the reduction over periods shorter than the remaining amortization of the original liabilities.

a. Reductions in liability due to such benefit reductions should not be amortized more rapidly than the pre-existing unfunded liabilities, as measured by the average or the longest current amortization period.

b. Benefit "restorations[11]" should similarly be amortized on a basis consistent with the pre-existing unfunded liabilities or with the "credit" amortization base established when the benefits were reduced.

7. For Surplus, similar to short amortization of

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10 For example, a Government Finance Officers Association (GFOA) 2004 recommended practice states that "the incremental costs of an early retirement incentive program should be amortized over a short-term payback period, such as three to five years. This payback period should match the period in which the savings are realized."

11 A benefit restoration occurs when a previous benefit reduction has been fully or partially restored for a group of members who were subject to the earlier benefit reduction.

gains, the lesson from the 1990s is that short amortization of surplus leads to partial or full contribution holidays (contributions less than Normal Cost, or even zero).

a. This is inconsistent with general policy objective 5, and led to insufficient budgeting for ongoing pension costs and to pressure for benefit increases.

b. General consensus is that this is not good public policy.

   i. See for example Recommendation 7 by California's 2007 Public Employee Post-Employment Benefits Commission, and also CalPERS 2005 funding policy.

c. Because of both the ongoing nature of the Normal Cost and the nature of public plan governance, amortization of UAAL and Surplus should not be symmetrical.

   i. It may be appropriate to amortize surplus over a period longer than would be acceptable for UAAL.

   ii. Such an asymmetric policy would reduce the magnitude and/or likelihood of partial or full contribution holidays.

   iii. One approach would be to disregard the Surplus and always contribute at least the Normal Cost. However if Surplus becomes sufficiently large then some form of Surplus management may be called for.

d. Note that long amortization of Surplus does not preclude other approaches to Surplus management that are beyond the scope of this discussion, including:

   i. Treating some level of Surplus as a non-valuation asset.

   ii. Changing asset allocation to reflect Surplus condition.

8. Separate Surplus related issue: When plan first goes into Surplus, should existing UAAL amortization layers be maintain or eliminated?

   a. Could maintain amortization layers and have minimum contribution of Normal Cost less 30 year amortization of Surplus.

   b. However, maintaining layers can result in net amortization charge even though overall plan is in Surplus.

   c. Alternative is to restart amortization of initial surplus, and any successive Surpluses.

      i. In effect, this is 30 year rolling amortization of current and future Surpluses.

      ii. Restart amortization layers when plan next has a UAAL.

9. Level dollar amortization is fundamentally different from level percent of pay amortization.

   a. No level dollar amortization period is exactly equivalent to a level percent period.

   b. Level dollar is generally faster amortization than level percent of pay, so longer periods may be reasonable.

   c. Plan and/or sponsor circumstances could determine appropriateness of level dollar method.

      i. Level dollar would be appropriate for plans where benefits are not pay related and could be appropriate if the plan is closed to new entrants.

      ii. Level dollar could be appropriate for sponsors and plans that are particularly averse to future cost increases, e.g., utilities setting rates for current rate payers.

      iii. Level dollar could be appropriate for sponsors and plans that want an extra measure of conservatism or protection against low or no future payroll growth.

      iv. Level dollar could be useful as a step in developing amortization payments in proportion to some basis other than payroll.

10. Multiple, fixed period layers vs. single, rolling period layer for gains and losses.

   a. Multiple, fixed amortization periods for each year's gain or loss ensures that all gains and losses are funded by a known date. This is consistent with accountability and with demographic matching.

b. A single rolling smoothing period avoids tail volatility where contributions are volatile not only when gains and losses occur but also when each year's gain or loss is fully amortized. This is consistent with volatility management.

c. With fixed, separate smoothing periods, tail volatility can be controlled by limited active management of the amortization layers, including combining consecutive gain and loss layers as necessary to reduce tail volatility.

   i. As with asset smoothing, active management should be used to manage the pattern of future UAAL funding and not to accomplish a short-term manipulation of contributions.

   ii. In particular the net remaining amortization period should be relatively unaffected by any combination of offsetting UAAL amortization layers.

   iii. The use of active management of the amortization layers may add complexity to the application of the policy and may reduce transparency.

11. Plans with layered amortization of an unfunded liability should consider actions to achieve a minimum net amortization charge that is not less than the payment required under a single 25 year amortization layer. This may be accomplished through active management of the amortization layers or through other means.

12. Rolling amortization periods for a single layer of gains and losses or for the entire UAAL.

    a. Similar to level dollar, acknowledge that rolling amortization is fundamentally different from fixed period amortization.

       i. Rolling amortization will have a substantial unamortized UAAL at the end of the nominal amortization period.

    b. Argument can be made for a single, rolling amortization layer for gains and losses if the actuarial valuation assumptions are expected to be unbiased so that there is an equal likelihood of future gains and losses that will offset each other.

       i. Such rolling amortization also requires that there are no systematic sources of future actuarial losses from plan design features, such as a subsidized service purchase option.

       ii. Extraordinarily large gains or losses that are not reasonably expected to be offset by future losses or gains should be isolated from the single rolling gain/loss amortization layer and amortized over separate, fixed periods.

       iii. Plans with a significant single rolling gain/loss amortization layer should affirmatively show that policy objectives will be achieved, without substantial violation of intergenerational equity.

    c. This argument is substantially weaker for rolling amortization for assumption changes (especially if consistently in a single direction, such as mortality assumption adjustments or recent changes in investment earnings assumptions.)

       i. Inconsistent with policy objective of intergenerational equity, as well as accountability and transparency.

       ii. Similar concerns for rolling amortization of gains and losses in the presence of biased assumptions or other systematic sources of actuarial losses.

    d. It is very difficult to reconcile rolling amortization of plan amendments with intergenerational equity, as well as with accountability and transparency objectives.

    e. Specific exception for rolling, lengthy amortization of Surplus, since as described earlier this helps meet general policy objective 5

13. Rolling amortization and the Aggregate cost method.

    a. The Aggregate cost method produces contribution levels and patterns similar to using the Entry Age method with a single rolling level percent of pay amortization layer for the entire UAAL and a relatively short rolling amortization period.

i. Effective rolling amortization period reflects average future service of active members.

b. However, the Aggregate cost method is fundamentally different from Entry Age (and from Projected Unit Credit) in that Aggregate does not measure an AAL or a UAAL.

i. Aggregate combines a high level of tail volatility management (policy objective #3) with high levels of demographic matching and accountability (policy objectives 2 and 4).

ii. Aggregate also provides no policy flexibility in the selection of an amortization period (since no UAAL is calculated) which provides protection from some agency risk issues, consistent with policy objective #5.

c. Retirement boards desirous of the high level of tail volatility management and computational simplicity associated with rolling amortization of the entire Entry Age UAAL should consider adopting the Aggregate cost method.

i. If a UAAL is measured (as under the Entry Age or Projected Unit Credit cost methods) then, as discussed above, the policy objectives indicate layered amortization with the possible exception of a single rolling amortization layer for gains and losses.

Practices

Based on the above discussion, and consistent with the policy objectives, amortization methods and parameters are categorized as follows:

LCAM Model Practices

- Layered fixed period amortization by source of UAAL
- Level percent of pay amortization
- Amortization periods

Source	Period
Active Plan Amendments[12]	Lesser of active demographics[13], or 15 years
Inactive Plan Amendments	Lesser of inactive demographics[13], or 10 years
Experience Gain/Loss	15 to 20 years
Assumption or Method Changes[14]	15 to 25 years
Early Retirement Incentives	5 years or less

- 30 year amortization of surplus (for plans with ongoing Normal Cost and/or plan expenses)
  - Eliminate all prior UAAL layers upon going into Surplus
- Combine gain/loss (and other) layers or restart amortization only to avoid tail volatility.
  - Combining layers should result in substantially the same current amortization payment.
  - Avoid using restart of amortization to achieve de facto rolling amortization.
  - Restart amortization layers when moving from Surplus to UAAL condition.
- Additional analysis, such as solvency projections, is likely to be appropriate for closed plans.

12 The effect of assumption changes integral to the measurement of the cost of plan amendments (e.g., change in rates of retirement to anticipate the effect of new benefit levels) should be included in the UAAL change associated with the plan amendment.

13 Demographics based periods include remaining active future service or retiree life expectancy. Amortization period should also control for negative cash flow where additional amortization payments are less than additional benefit payments.

14 Method change includes the initial liability for a newly funded plan.

Acceptable Practices

- Up to 15 years for inactive plan amendments.
- Level dollar fixed period layered amortization by source of UAAL, using the same model amortization periods as above.
  - Ideally, some rationale should be given if used with pay related benefits.

Acceptable Practices, with Conditions

- Up to 25 year layered fixed period amortization by source, for all sources of UAAL.
  - Ideally with some rationale given for using periods outside the model ranges.
- Rolling amortization of a single combined gain/loss layer with an amortization period that does not entail any negative amortization.
  - With model periods for other sources of UAAL.
  - Use separate, fixed period layers for extraordinary gain or loss events.
  - Plans with a significant single rolling gain/loss amortization layer should demonstrate that policy objectives will be achieved.
- Up to 30 year fixed amortization of change in funding method (e.g. from PUC to Entry Age) or initial liability for a newly funded plan (i.e. an existing plan previously funded on a pay-as-you-go basis but not a new plan creating new past service benefits.)
  - Ideally some rationale should be given for using periods outside the model ranges.

Non-recommended Practices

- Fixed period amortization of the entire UAAL as a single combined layer, with periodic reamortization over a new (longer) starting amortization period.
- Layered fixed period amortization by source of UAAL over longer than 25 years (i.e., 26 to 30 years).
- Rolling amortization of a single combined gain/loss layer with an amortization period that does entail any negative amortization, but no longer than 25 years.
  - Same three conditions that apply to Acceptable with Conditions rolling gain/loss amortization.
- Rolling/open amortization of entire UAAL as a single combined layer (exclusive of plan amendments but inclusive of gain/loss, assumption and method changes) even where the amortization period does not entail negative amortization.

Unacceptable Practices

- Layered fixed period amortization by source of UAAL over longer than 30 years.
- Rolling/open amortization over longer than 25 years of a single combined gain/loss layer.
- Rolling/open amortization of entire UAAL as a single combined layer (exclusive of plan amendments) where the amortization period entails negative amortization.
- Rolling/open amortization of entire UAAL as a single combined layer (including plan amendments) even where the amortization period does not entail negative amortization.

Transition Policies

Transition policies are particularly applicable to amortization policy. Generally, transition policies for amortization would allow current fixed period amortization layers (with periods not to exceed 30 years) to continue, with new amortization layers subject to these guidelines. Transition from rolling amortization would fix any rolling layer at its current period, with future liability changes amortized in accordance with these guidelines. During the transition (i.e., as long as the remaining period for the formerly rolling base is longer than model or acceptable periods) any new credit layers (e.g., due to actuarial gains or less conservative assumptions) should be amortized over no longer than that same remaining period.

Direct Rate Smoothing

An actuarial funding policy may include some form of direct rate smoothing, where the contribution rates that result from applying the three principal elements of funding policy (including asset smoothing) are then directly modified.

As noted in the Introduction, some practitioners are developing direct contribution rate smoothing techniques as an alternative to asset smoothing. At this time, there are no widely accepted practices established for this type of direct rate smoothing. This discussion does not address the use of direct rate smoothing techniques as an alternative to asset smoothing. The CCA PPC is considering development of a separate white paper on direct rate smoothing as an alternative to asset smoothing.

The balance of this discussion pertains only to direct rate smoothing when used in conjunction with asset smoothing. Two types of such direct rate smoothing policies that are known to be in current practice were evaluated for this development:

1. Phase-in of certain changes in contribution rates, specifically, phasing-in the effect of assumption changes element over short period, consistent with the frequency of experience analyses.
2. Contribution collar where contribution rate changes are limited to a specified amount or percentage from year to year.

Discussion

1. Contribution rate phase-in can be an effective and reasonable way to address the contribution rate impact of assumption changes.
    a, Ideally the phase-in period should be no longer than the time period until the next review of assumptions (experience analysis).
        i. This approach is most appropriate when experience analyses are performed on a regular schedule.
        ii. For systems with no regular schedule for experience analyses, the phase-in period would ideally be chosen so as to avoid overlapping phase-in periods.

a. The plan and its sponsors should be clearly aware of the additional time value of money cost (or savings) of the phase-in, due to the plan receiving less (or more) than the actuarially determined contributions during the phase-in.

b. Any ongoing policy to phase-in the effect of assumption changes should be applied symmetrically to both increases and decreases in contribution rates.

c. Ongoing policy may be to phase-in only significant cost increases or decreases.

d. Note that the phase-in of the contribution rate impact of an assumption change is clearly preferable to phasing in the assumption change itself. While a detailed discussion is outside the scope of this discussion, phasing in an assumption change may be difficult to reconcile with the governing actuarial standards of practice.

2. Contribution collars have the policy drawback that the collar parameters arbitrarily override the contribution results produced by the other funding policy parameters (including asset smoothing), each of which have a well-developed rationale.

   a. If contribution collars are used they should be supported by analysis and projections to show the effect on future funded status and future policy based contribution requirements (prior to the application of the contribution collar).

   b. There may also need to be a mechanism to ensure adequate funding following extraordinary actuarial losses.

3. Using either form of direct rate smoothing for other than assumption changes (i.e., for actuarial experience or plan amendments) appears inconsistent with the development of parameter ranges for the other elements of the funding policy.

Practices

Based on the above discussion, and consistent with the policy objectives, parameters are categorized as follows:

LCAM Model Practices

- None

Acceptable Practices

- For systems that review actuarial assumptions on a regularly scheduled basis, phase-in of the cost impact of assumption changes over a period no longer than the shorter of the time period until the next scheduled review of assumptions (experience analysis) or five years.
  - Phase-in should be accompanied by discussion and illustration of the impact of the phase-in on future contribution rates.
  - Phase-in may be applied only to cost impacts deemed material, but should be applied consistently to both cost increases and decreases.

Acceptable Practices, with Conditions

- For systems that do not review actuarial assumptions on a regularly scheduled basis, phase-in of the cost impact of assumption changes over a period of up to five years.
  - Phase-in of the cost impact of any prior assumption changes must be completed before commencing another phase-in period.
  - Phase-in should be accompanied by discussion and illustration of the impact of the phase-in on future contribution rates.
  - Phase-in may be applied only to cost impacts deemed material, but should be applied consistently to both cost increases and decreases.

Non-recommended Practices

- Phase-in of the cost impact of assumption changes over a period greater than five years.
- Phase-in of the cost impact of actuarial experience, in conjunction with model or acceptable practices for asset smoothing and UAAL amortization.
- Contribution collars in conjunction with model or acceptable practices for asset smoothing and UAAL amortization.
- Phase-in or contribution collars for the cost impact of plan amendments.

Items for Future Discussion

This white paper is intended to address the principal elements of an actuarial funding policy as applicable in most but not all situations. Other issues related to funding policy that may be of varying significance are listed in this section, including some of a more technical nature. These items may be the subjects of future guidance.

Impact of Risk/Employer ability to pay/Level of benefit protection–These are three considerations that could affect the development of an actuarial funding policy. While this white paper notes that these factors should be considered, it does not develop policies or procedures for doing so. This paper also does not address appropriate disclosure items, including disclosures related to risk. These considerations (and interrelationships) are outside of our current scope but are important items for future discussion.

OPEB Plans – As noted earlier, while we believe the general policy objectives developed here apply to OPEB plans as well, application of those policy objectives to OPEB plans may result in different specific funding policies based on plan design, legal status and other features distinctive to OPEB plans. Many of the actuaries who participated in developing this paper work on both pension and OPEB funding. We may address funding policies specific to OPEB plans in a later document. That process would also draw on experts in the design, underwriting and valuation of OPEB plans.

Self Adjusting System–We expect that an increasing number of plans will have self adjusting provisions (in this context we are referring to benefit adjustments). These provisions could impact the selection of funding methods.

Transfers of Service Credit–New entrants (or even current member) are sometimes eligible to transfer service credit for employment prior to plan membership. This generally creates actuarial losses, which is inconsistent with our policy objectives. Later we may discuss whether and how this should be anticipated in the valuation.

Purchase of Service–This can raise the same type of issues as Transfers of Service Credit since unfunded actuarial liabilities often increase when employees purchase service credit.

Actuarially determined contribution as a dollar amount or percentage of pay–Sometimes the contribution requirement is determined prior to the year it is due and shown as a dollar amount or a percentage of payroll. Either can be

used to determine the contribution amount required.

Role for Open/Stochastic Valuations and risk disclosures–Our guidelines are developed in the context of a closed group, deterministic valuation. This is in part due to the belief that such a valuation best achieves our policy objectives. However, there are also advantages associated with other valuation practices.

Lag time between valuation date and fiscal year – Because of the time needed to produce the valuation and to budget for rate changes, the contribution made for a given fiscal year is often based on an earlier valuation date. This will generate contribution gains or losses when rates decrease or increase, respectively. Some systems adjust for these gains or losses in setting the rates but many do not.

American Academy of Actuaries
ISSUE BRIEF
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Key Points

- The policies used to establish funding for a public-pension plan should be formulated to maintain an appropriate balance among the competing objectives of benefit security, generational equity, and contribution stability.
- Policymakers should communicate how these objectives have been balanced, and how, when and whether or not all of the identified costs are expected to be met via the contribution-allocation procedure.
- The contribution-allocation procedure should include a funding target based on accumulating the present value of benefits for members by the time they retire, and a plan to make up for any variations in actual assets from the funding target within a reasonable time period.
- Any risks that could make it difficult to achieve the objectives should be identified, anticipated, and communicated, and the results of the contribution-allocation procedure should be monitored and adjustments made as necessary.
- The contributions determined by the contribution-allocation procedure should actually be contributed to the plan by the sponsor on a consistent basis.

Objectives and Principles for Funding Public Sector Pension Plans

Funding a pension plan involves determining appropriate contribution amounts at specific points in time and determining how to invest the assets of the plan until benefits are paid. In the private sector, minimum contribution requirements are set by federal law.[1] In the public sector, each state sets its own contribution requirements, and each local governing body (e.g., county, city, district) sets its own contribution levels within whatever requirements, if any, the state may have established for local jurisdictions. Decisions about what to contribute and when are usually made by a retirement board or plan sponsor within the boundaries of the contribution requirements noted above. The decision-making entity typically is advised by an actuary. In reality, there is wide variation in the policies adopted by different local governing bodies to fund their pension plans, reflecting a complex interplay between local legal or policy requirements, objectives, and other constraints or competing priorities. In recent years, there has been a great deal of public discussion about whether current policies are appropriate or prudent.

Since the Government Accounting Standards Board (GASB) issued Statements 25 and 27[2] in 1994, many local governing bodies, rating agencies, and other stakeholders have used the parameters in

[1]Employee Retirement Income Security Act of 1974 (ERISA) as amended.
[2]GASB Pronouncement No. 25: *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans*; GASB Pronouncement No. 27: *Accounting for Pensions by State and Local Governmental Employers.*

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American Academy of Actuaries
1850 M Street NW, Suite 300, Washington, DC 20036
Tel 202 223 8196, Fax 202 872 1948
www.actuary.org

Mary Downs, Executive Director
Charity Sack, Director of Communications
Craig Hanna, Director of Public Policy
Don Fuerst, Senior Pension Fellow
David Goldfarb, Pension Policy Analyst

those pronouncements for determining the Annual Required Contribution (ARC) as a benchmark for contribution requirements.[3] In 2012, GASB issued Statements 67 and 68,[4] replacing Statements 25 and 27 effective for fiscal years beginning after June 15, 2013 and 2014 respectively, and it eliminated the ARC and clearly avoided providing guidance that might serve as a benchmark for contribution requirements.

Certain Actuarial Standards of Practice (ASOPs), as promulgated by the Actuarial Standards Board (ASB), identify what actuaries should consider, document, and disclose when performing an actuarial assignment, including, but not limited to, measuring pension obligations, selecting assumptions, and selecting methods to determine pension plan contributions. The guidance for selecting methods to determine pension contributions, however, is limited, focusing largely on ensuring there are adequate assets to pay benefits when due. Recognizing there are other objectives and issues in the public sector, the Pension Practice Council of the American Academy of Actuaries believes that a discussion of the fundamental objectives and principles for funding public-sector pension plans can inform actuaries practicing in the public sector, the decision-makers who set policies to fund pension plans, and the public at large as to some of the issues to consider in developing a funding policy.

Actuaries typically provide input with respect to the contribution allocation procedure and the assumptions used in that procedure to fund the pension plan. A contribution allocation procedure primarily consists of:

- an **actuarial cost method** that allocates the projected pension obligation among past, current, and future periods of service,
- an **asset smoothing method** that recognizes investment gains and losses over a period of time, and
- an **amortization method** that allocates the cost of benefit changes, assumption changes, and gains and losses over future years.

Although a plan's investment policy will affect the risks associated with a contribution allocation procedure,[5] the investment policy itself is generally not considered a component of the contribution allocation procedure.[6]

[3]The ARC has been the basis for annual pension expense under GASB Statements 25 and 27. It was generally equal to the contributions determined for the plan provided the contributions fell within certain parameters. As a result, those parameters came to be viewed by some as guidance for appropriate contribution levels even though they were not intended to provide such guidance.

[4]GASB Pronouncement No. 67: *Financial Reporting for Pension Plans—an amendment of GASB Statement No. 25*; GASB Pronouncement No. 68: *Accounting and Financial Reporting for Pensions—an amendment of GASB Statement No. 27*.

[5]One of the key points of the Academy's recent issue brief, *Measuring Pension Obligations*, was that "Plans funded at the budget level and invested in a diversified portfolio are likely to experience either insufficient or surplus assets, and benefit security is affected by the plan sponsor's ability to make additional contributions if an adverse investment experience materializes."

[6]It is intended that this issue brief will be supplemented in the future with a Practice Note for actuaries that discusses the elements of a contribution allocation procedure in more detail.

Members of the Public Plans Subcommittee include: Melissa Algayer, MAAA, FCA, EA; Paul Angelo, MAAA, FSA, FCA, EA; Brent Banister, MAAA, FSA, FCA, EA; William Hallmark, MAAA, ASA, FCA, EA (Chairperson); David Kausch, MAAA, FSA, FCA, MSPA, EA; Larry Langer, MAAA, ASA, FCA, EA; Matt Larrabee, MAAA, FSA, EA; Alan Miligan, MAAA, FSA, FCA, FCIA; Kim Nicholl, MAAA, FSA, FCA, EA; Mark Olleman, MAAA, FSA, FCA, EA; James Rizzo, MAAA, ASA, FCA, EA; Brian Septon, MAAA, FSA, FCA, EA; David Stimpson, MAAA, FCA, EA; Gregory Stump, MAAA, FSA, FCA, EA

Objectives

In establishing the policies used to fund a public sector pension plan, three primary objectives need to be balanced:

- Benefit Security
- Contribution Stability and Predictability
- Generational Equity

Benefit Security

Pension plans provide a form of compensation in which benefits are paid many years after the period of employment that entitled the recipient to those benefits. Consequently, it is important for plan members to be confident that the promised benefits will be paid. The key factors that determine the security of the pension promise are the legal obligation of a plan sponsor[7] to provide the benefit, the level of assets in the pension plan, the manner in which those assets are invested, and the financial resources of the sponsor to make any necessary additional contributions if and when those contributions come due. The policies established to fund the pension plan should be premised on the assumption that the obligation to provide the promised benefits must be met. Since the financial resources of a sponsor can change over time, the policies used to fund the pension plan should target the accumulation of sufficient assets over the working lifetime of a plan member, at least equal to the present value of the plan member's future benefits on a basis consistent with the level of risk affordable by the plan sponsor. The contribution allocation procedure should pay for any difference between actual and anticipated experience in some reasonable period of time that is not too long.[8]

Contribution Stability and Predictability

The annual contribution to a pension plan is a budgeted expenditure for the plan sponsor. Significant changes in the contribution amount from one year to the next can have significant repercussions on other parts of the budget, particularly if those changes require an increase that is not or cannot be anticipated. While benefit security may be best served by adjusting for adverse deviations from expected experience over a very short period, the volatility and lack of predictability in contribution amounts that can result (depending on the manner in which assets are invested) could be unsustainable. Consequently, investment strategy, benefit policy, and margins for adverse deviation in the selection of assumptions are considered to control the exposure to significant adverse changes in contribution amounts. The contribution allocation procedure should pay for any difference between actual and anticipated experience in some reasonable period of time that is not too short.8 The period selected should allow sponsors reasonable time to adjust to events that affect the contributions to the plan.

Generational Equity

From an economic perspective, each generation of taxpayers ideally should pay for the compensation of the public employees who provide services to those taxpayers, including the funding of pension benefits that accrues during the period. If all pension plan assumptions are met, the contribution allocation procedure should accumulate assets in an orderly manner to the present value of future benefits by the time a plan member retires.

Actuarial cost methods generally do a good job of allocating the expected cost of an employee's benefit in a manner consistent with the

[7]In a public pension plan, it is common for there to be multiple sponsors and in many cases these sponsors share the cost of providing pension benefits to the employees of all of the plan sponsors. In this issue brief, the word "sponsor" should also be interpreted as encompassing multiple sponsors.

[8]"Too long" and "too short" are subjective terms and are used here to emphasize the competition between these objectives. Improving benefit security requires that differences be made up over a relatively short period of time while improving contribution stability requires that differences be made up over a relatively long period of time.

objective of generational equity. The significant challenges to accomplishing the objective of generational equity arise when there are gains or losses (particularly on benefits and the assets intended to provide the benefits for former employees or retirees), assumption changes (again, particularly for inactive members), or prior generations that did not fully pay for the cost of the benefits for the employees who provided services to that generation.

Balancing the Objectives

Each of these objectives is important, but they naturally come into conflict at times. The policies used to fund the plan should seek appropriate balance among the conflicting objectives, and an appropriate balance is likely to differ from one plan (and sponsor) to another. Some plan sponsors may need more contribution stability than others (for example, plans may vary in terms of their size relative to the size of the sponsor resulting in different relative budget impacts for the same change in contribution amount). Different characteristics will cause decision makers to strike different balances among the competing objectives. However, no objective should be weighted to the exclusion of any other objective.

Principles

In balancing their objectives, plan decision-makers have a fair amount of flexibility. However, there are certain principles to which all policies should adhere, regardless of how the objectives are balanced.

Make the Contributions Determined by the Contribution Allocation Procedure

Given an investment policy and a set of assumptions, the contribution allocation procedure is used to determine the amount to be contributed at specific points in time. The procedure is designed to balance the above objectives and is premised on the assumption that the contributions that are determined will be made. If the determined contributions are not actually made on a consistent basis, some or all of the objectives will not be met. While there will always be competing demands for the cash needed to fund the pension plan, and while the contribution policies used may be modified or amended periodically to reflect updates to the balance between objectives, the resulting contribution determined by the process should not be ignored. The contributions called for by the contribution allocation procedure need to be made consistently by the sponsor.

Once the plan sponsor takes on a legal commitment[9] to provide retirement benefits, then ideally the plan sponsor should also be subject to a legally enforceable contribution demand of plan members to prefund the benefits on an actuarially determined basis. A failure to make the contributions determined by the contribution allocation procedure has contributed to many of the situations in which a pension plan is now placing significant strain on budgets.

Pre-Fund All of the Expected Costs

The contribution allocation procedure should include a funding target based on accumulating the present value of benefits for members by the time they retire, and a plan to make up for any variations in actual assets from the funding target within a defined and reasonable time period. Among other conditions, this means the following equation should hold true.

Current assets of the plan

+

Present value of future contributions intended to finance the benefits of current plan members

=

Present value of future benefits for current plan members

This equation implies that normal cost contributions for expected new entrants should not be planned to be used to pay for the benefits of current members. Of course, the future contributions should always be made before the ben-

[9]As determined by state and local authority.

efits need to be paid so the assets of the plan are not depleted before the last benefit payment is made.

Enhance Transparency, Accountability, Credibility, and Objectivity

The policies used to fund a pension plan should be clear in their intent and effect. In particular, the parties responsible for setting the policies should communicate how the objectives have been balanced, and, how, when, and whether or not all of the identified costs of the plan are expected to be met via the contribution allocation procedure. Appropriate disclosures should be developed to assist in this communication and allow users to track the effectiveness of the contribution policies over time. Furthermore, the disclosures should report on the actuarial valuation results both before and after any contribution volatility management techniques (including fixed contribution rates) to clearly identify the effect of recent volatility on current and anticipated future contribution levels and measures of unfunded liability.

Furthermore, even if the actual contribution is not based on an actuarially determined contribution (e.g., fixed contribution rates), the contribution amount should be compared to an actuarially determined contribution amount.

The parameters of the policies used to fund the pension plan should be developed based on balancing the specific policy objectives for the long term, rather than just on immediate contribution results.

Identify, Anticipate and Communicate Risk of Not Achieving the Objectives

In managing a pension plan, there are risks that could make it difficult to achieve the policy objectives. The sources of the risk (investment, demographic, agency, other) should be identified, anticipated, communicated, and monitored. Awareness of these risks can foster policies to mitigate the risks and improve the sustainability and ongoing affordability of the system.

For example, it is important to acknowledge, identify, and manage situations when stakeholders might seek to influence contribution amounts in the short-term to achieve competing goals (e.g., public policy funding for other public needs, immediate fiscal deficits, etc.) to the detriment of achieving the funding objectives for the pension plan.

Monitor Results and Adjust

A critical part of any contribution allocation procedure is periodic monitoring to assess the status of the plan and to make any adjustments warranted. If the contribution allocation procedure has not produced results as anticipated, or risks (anticipated or unanticipated) have emerged that may make it difficult to achieve the objectives, adjustments to the procedure should be considered to achieve the objectives of benefit security, generational equity, and contribution stability.

Summary

The policies used to fund a public pension plan should be formulated to maintain an appropriate balance among the competing objectives of benefit security, generational equity, and contribution stability. The policymakers should communicate how these objectives have been balanced, how, when and whether or not all of the identified costs are expected to be met via the contribution allocation procedure. The contribution allocation procedure should include a funding target based on accumulating the present value of benefits for members by the time they retire, and a plan to make up for any variations in actual assets from the funding target within a reasonable time period. Any risks that could make it difficult to achieve the objectives should be identified, anticipated, and communicated, and the results of the contribution allocation procedure should be monitored and adjustments made as necessary. Finally, and perhaps most importantly, the contributions determined by the contribution allocation procedure should actually be contributed to the plan by the sponsor on a consistent basis.

BEST PRACTICE

Core Elements of a Pension Funding Policy (CORBA) (2013)

Background. The Government Finance Officers Association (GFOA) has recommended that every state and local government that offers defined benefit pensions formally adopt a funding policy that provides reasonable assurance that the cost of those benefits will be funded in an equitable and sustainable manner.[1] To provide the desired degree of assurance, a pension funding policy would need to incorporate the following principles and objectives:

1. Every government employer that offers defined benefit pensions should obtain no less than biennially an actuarially determined contribution (ADC) to serve as the basis for its contributions;
2. The ADC should be calculated in a manner that fully funds the long-term costs of promised benefits, while balancing the goals of 1) keeping contributions relatively stable and 2) equitably allocating the costs over the employees' period of active service;
3. Every government employer that offers defined benefit pensions should make a commitment to fund the full amount of the ADC each period. (For some government employers, a reasonable transition period will be necessary before this objective can be accomplished);
4. Every government employer that offers defined benefit pensions should demonstrate accountability and transparency by communicating all of the information necessary for assessing the government's progress toward meeting its pension funding objectives.

These principles and objectives necessarily will affect decisions related to the treatment of three core elements of a comprehensive pension funding policy:

- *Actuarial cost method* - the technique used to allocate the total present value of future benefits over an employee's working career (*normal cost*/*service cost*).
- *Asset smoothing method* - the technique used to recognize gains or losses in pension assets over some period of time so as to reduce the effects of market volatility and stabilize contributions.
- *Amortization policy* - The length of time and the structure selected for increasing or decreasing contributions to systematically eliminate any unfunded actuarial accrued liability or surplus.

Recommendations. To ensure consistency with the principles and objectives described above, the GFOA recommends that a pension funding policy treat each of its core elements as follows:

[1] "Guidelines for Funding Defined Benefit Pensions" (2013) (CORBA).

Actuarial cost method. The actuarial cost method selected for funding purposes should conform to actuarial standards of practice and allocate normal costs over a period beginning no earlier than the date of employment and should not exceed the last assumed retirement age. Moreover, the selected actuarial cost method should be designed to fully fund the long-term costs of promised benefits, consistent with the objective of keeping contributions relatively stable and equitably allocating the costs over the employees' period of active service.[2] While not the only method that would satisfy this criterion, the entry age method—level percentage of pay normal cost—is especially well suited to achieving this purpose.

Asset smoothing. The method used for asset smoothing should:

- Be unbiased relative to market. Thus, for example:
    - The same smoothing period should be used for both gains and losses, and
    - Market corridors (a range beyond which deviations are *not* smoothed), if used, should be symmetrical[3], and
- Provide for smoothing to occur over fixed periods (the use of rolling periods normally should be avoided), ideally of five years or less, but never longer than ten years.
    - Provide for a market corridor if smoothing is to occur over a period longer than five years.

Amortization. Amortization of the unfunded actuarial accrued liability[4] should:

- Use fixed (closed) periods that
    - Are selected so as to balance the twin goals of demographic matching (equitable allocation of cost among generations) and volatility management (funding at a level percentage of payroll) and
    - Never exceed 25 years, but ideally fall in the 15-20 year range;
- Use a layered approach for the various components to be amortized (that is, an approach that separately tracks the different components to be amortized); and emerge as a level percentage of member compensation or as a level dollar amount.

Additional considerations for plans closed to new entrants. When a plan is closed to new participants, the aggregate actuarial cost method – level percentage of pay normal cost – is especially well suited for funding.

For closed plans with no remaining active members:

- Special attention needs to be given to the mix of investments (given the shorter time horizon); and
- In comparison to open plans:

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[2] Employers using some other actuarial cost method should carefully monitor demographic changes and trends in the covered workforce inasmuch as such changes could result in increased employer contributions as a percentage of payroll.

[3] Generally, the appropriate corridor will depend upon the length of the smoothing period, with longer smoothing periods requiring narrower corridors.

[4] Special considerations may apply to the amortization of a surplus (e.g., use of a longer amortization period).

    - Asset smoothing periods should be shorter (typically no longer than three years);
        - Corridors, if used, should be narrower; and
    - Amortization periods should be shorter (typically no longer than 10 years for gains and losses).

For closed plans that still have active members:

- The continued use of level percent of member compensation amortization remains appropriate, but *not* for a long period (i.e., as the number of active members decreases); and
- In comparison to open plans:
    - Asset smoothing periods should be shorter;
        - For asset smoothing periods that exceed five years, a corridor (not to exceed 20 percent) should be used; and
    - Amortization periods should be shorter.

References.

- California Actuarial Advisory Panel, *Actuarial Funding Policies and Practices for Public Pension and OPEB Plans*, February 2013 at: http://www.sco.ca.gov/Files-ARD/BudLeg/CAAP_Funding_Policies_w_letter.pdf

Segal Consulting

Public Sector Letter

Benefits, Compensation and HR Consulting OCTOBER 2014

Actuarial Funding Policy Guidance: Comparison of Recommendations Reveals Considerable Consensus — and a Few Notable Differences

As readers of Segal Consulting's *Public Sector Letters* are well aware, the funding of U.S. public sector pension plans has become a high-profile topic in recent years. This has been due to many factors, including historically high volatility of investment returns, budgeting pressures experienced by the sponsoring entities, and increased scrutiny of plans that have not properly funded their pension obligations. Another important influence is that the Governmental Accounting Standards Board (GASB) has clarified that financial reporting standards do not constitute funding policy guidance, leaving something of a regulatory vacuum when it comes to public pension funding policies.

This is leading many public pension plans to review their existing funding policies and, for the first time in many cases, to record them in a comprehensive statement of funding policy used for setting an "actuarially determined contribution" (ADC). Organizations within the public pension industry (including three of the major professional actuarial groups) have responded to these developments by issuing guidance for establishing and maintaining actuarially responsible funding policies for these plans. While this effort is ongoing, we have seen the following guidance to date:

"GASB has clarified that financial reporting standards do not constitute funding policy guidance."

- An October 2014 "White Paper" by the Conference of Consulting Actuaries Public Plans "Community" (the CCA PPC White Paper),[1]
- A February 2014 Issue Brief published by the American Academy of Actuaries (the AAA Issue Brief),[2]
- A report published in February 2014 by an independent "Blue Ribbon Panel" commissioned by the Society of Actuaries (the BRP/SOA Report),[3] and
- A March 2013 "Best Practice" published by the Government Finance Officers Association (GFOA) (the GFOA Best Practice).[4]

This *Public Sector Letter* discusses the similarities among these policy papers and points out notable differences.

IN THIS ISSUE:

Considerable Consensus

There is considerable consensus on the recommendations outlined in each of the reports and, for the most part, the suggested guidelines are in line with current actuarial practice in the public sector.[5]

[1] CCA PPC White Paper, "Actuarial Funding Policies and Practices for Public Pension Plans," is available from the CCA website: http://www.ccactuaries.org/publications/news/cca-ppc-white-paper.cfm. Note that the significant change from the CCA PPC's earlier "Discussion Draft" was to limit the scope of the guidance to pension plans rather than to also include OPEB plans.

[2] The AAA Issue Brief, "Objectives and Principles for Funding Public Sector Pension Plans," is available from the AAA website: http://www.actuary.org/files/Public-Plans_IB-Funding-Policy_02-18-2014.pdf

[3] The "Report of the Blue Ribbon Panel on Public Pension Plan Funding" is accessible from the SOA website: http://www.soa.org/blueribbonpanel

[4] This GFOA Best Practice, "Core Elements of a Funding Policy," is available on the GFOA website: http://www.gfoa.org/core-elements-funding-policy. There are other relevant Best Practices (Guidelines for Funding Defined Benefit Pensions, Sustainable Funding Practices of Defined Benefit Pension Plans & Reviewing, Understanding and Using the Actuarial Valuation Report and Its Role in Plan Funding).

[5] Segal's November 2011 *Public Sector Letter*, "Planning a Successful Pension Funding Policy" (http://www.segalco.com/publications/publicsectorletters/nov2011.pdf), also addresses funding policy issues; the subsequent guidance is fully consistent with the policies developed and discussed in that publication.

In comparing these reports, it is helpful to consider *Funding Policy Objectives* separately from *Specific Funding Policy Elements*.

Funding Policy Objectives

The greatest area of consensus among these reports is in the objectives of an actuarial funding policy. The most important policy objectives common to all the documents are that a public sector plan should be funded in accordance with an actuarially determined funding policy and that a plan's funding policy should target to fund 100 percent of the plan's actuarial liabilities over a reasonable period. There is also agreement among the recommendations that funding policy should be structured so that the annual contributions reasonably match the cost of benefits to the years in which the benefits are earned, and that the contributions should be stable and predictable for budgeting purposes.

Table 1 highlights several of the key policy objectives common to two or more of the reports. Each report uses its own terms to describe these objectives, and the descriptions in Table 1 reflect a composite of those descriptions.

Table 1: Considerable Consensus on Funding Policy Objectives: How the Three Actuarial Organizations Compare to One Another and to the GFOA Best Practice

Objective	CCA PPC White Paper	AAA Issue Brief	BRP/SOA Report	GFOA Best Practice
Fund the expected cost of all promised benefits (*i.e.*, fund normal cost plus 100% of any unfunded actuarial liabilities).	✓	✓	✓	✓
Match annual contributions to fund the cost of benefits to years of service (*i.e.*, target demographic matching or generational equity).	✓	✓	✓	✓
Have costs emerge stably and predictably (*i.e.*, manage contribution volatility).	✓	✓	✓	✓
Balance competing funding-policy objectives.	✓[1]	✓	✓	✓
Identify risks[2] that could make it difficult to achieve funding objectives.	✓	✓	✓	
Communicate how the funding-policy objectives will be achieved by the contribution allocation procedure (accountability and transparency).	✓	✓		✓
Establish an enforcement mechanism for making contributions on a consistent, actuarially determined basis: actually fund the "actuarially determined contribution" (ADC).	✓[3]	✓	✓	✓

[1] The CCA PPC White Paper talks specifically about a balance between targeting generational equity and managing contribution volatility.

[2] The CCA PPC White Paper focuses on agency risk, which refers to the possibility that interested parties (agents) may try to "influence cost calculations in directions viewed as consistent with their particular interests." The AAA Issue Brief also cites agency risk, but adds investment, demographic and "other" risks. The BRP/SOA Report focuses primarily on investment risk and related disclosures.

[3] Although the CCA PPC White Paper does not mention an explicit enforcement mechanism, all of its guidance is developed under the presumption that the plan will be funded in accordance with its actuarial funding policy.

"The greatest area of consensus among these reports is in the objectives of an actuarial funding policy."

Specific Funding Policy Elements

In addition to the general policy objectives discussed above, there is also significant agreement as to the specific funding policy elements of the actuarial cost method, asset smoothing and unfunded liability amortization. The Entry Age (sometimes called Entry Age Normal) actuarial cost method is recommended by the three reports that discuss specific funding policies: the CCA PPC White Paper, the BRP/SOA Report, and GFOA Best Practice.[6] In addition, all three reports approve of asset smoothing for periods of five years. The reports are also consistent on approving the use of a level percent of pay method for amortization of unfunded liabilities.

Some areas where the documents differ are in the structure and length of amortization periods by source of unfunded liability, and the application of "market value corridors" (*i.e.*, a corridor that constrains the difference between the smoothed value of assets and the market value) that should be included in the asset smoothing methodology. For asset smoothing, the CCA White Paper specifies the maximum corridors that should be used for various smoothing periods. The GFOA Best Practice specifies that a market corridor should be used if the asset smoothing period is longer than five years. The BRP/SOA report does not discuss market value corridors at all, and recommends that asset smoothing — if used — should be limited to five years.

"Areas where the documents differ are in the structure and length of amortization periods by source of unfunded liability, and the application of 'market value corridors.'"

As to amortization of the unfunded actuarial accrued liability (UAAL), all three reports agree that 15 to 20 years is the preferred range for UAAL amortization periods. Both the GFOA Best Practice and the CCA PPC White Paper prefer fixed period "layered" amortization (*i.e.*, amortize each portion of the UAAL over a separate fixed period as it emerges), while the BRP/SOA report provides limited guidance on the structure of the UAAL amortization payments.

"All three reports agree that 15 to 20 years is the preferred range for UAAL amortization periods."

As discussed in the next section, the BRP/SOA Report also recommends a "Standardized Contribution Benchmark" that employs a rolling 15-year UAAL amortization period.

Tables 2–4 highlight the specific actuarial funding policy elements recommended in the reports (except for the AAA Issue Brief, which does not include detailed policy recommendations). Table 2 on the next page compares recommendations for the actuarial cost method. Table summarizes the recommendations for asset smoothing. Table 4 on page 5 focuses on recommendations for UAAL amortization.

Notable Differences

Some differences among the recommendations can be attributed to differences in intended scope. As noted earlier, the AAA Issue Brief is more general and does not address specific policy details but is consistent in principle with the other documents. The CCA White Paper has by far the most comprehensive and detailed discussion of specific policy alternatives, with recommendations that are generally consistent with the GFOA Best Practice.

One notable difference is that the BRP/SOA Report recommends that public pension plans disclose to outside entities a variety of standardized 30-year projections under alternative actuarial assumptions, investment returns and even contribution amounts relative to the actuarially determined contribution. Perhaps the most controversial recommendation would be to disclose current and projected results using a "standardized contribution benchmark" based on a

"The CCA White Paper has by far the most comprehensive and detailed discussion of specific policy alternatives, with recommendations that are generally consistent with the GFOA Best Practice."

Continued on page 5.

[6] The AAA Issue Brief, in contrast, discusses only policy objectives, and not specific policy elements. Also note that, rather than recommending only certain policy practices, the CCA PPC White Paper uses categories including Model, Acceptable, Acceptable with Conditions, Non-recommended and Unacceptable. This discussion focuses primarily on its Model practices.

Table 2: Specific Actuarial Funding Policy Recommendations for Actuarial Cost Method: How Two of the Actuarial Organizations Compare to Each Other and to the GFOA Best Practice

	Actuarial Cost Method
CCA PPC White Paper	Entry Age cost method with level percentage of pay Normal Cost.* For multiple tiers, Normal Cost is based on each participant's benefit (not "Ultimate Entry Age"). For benefit formula changes within a tier (generally after a fixed date), Normal Cost is based on current benefit structure ("Replacement Life" Entry Age). Entry Age Normal Cost averaged over career is also "acceptable." Aggregate, Frozen Initial Liability and Projected Unit Credit are "acceptable with conditions."
BRP/SOA Report	Individual Entry Age method used for "Standardized Contribution Benchmark."
GFOA Best Practice	Entry Age cost method with level percentage of pay Normal Cost is "especially well suited" to achieving the policy objectives.

* Normal Costs are level even if benefit accrual or eligibility changes with age or service. All types and incidences of benefits are funded over a single measure of expected future service. The Normal Cost for a tier of benefits is the sum of the individually determined Normal Costs for all participants in that tier. For plans with benefits unrelated to compensation, the Entry Age method with level dollar Normal Cost may be more appropriate.

Table 3: Specific Actuarial Funding Policy Recommendations for Asset Smoothing: How Two of the Actuarial Organizations Compare to Each Other and to the GFOA Best Practice

	Asset Smoothing
CCA PPC White Paper	Deferrals based on total return gain/loss relative to assumed earnings rate and recognized over fixed smoothing periods not less than three years. Maximum market value corridors for various smoothing periods: 5 years: 50%/150% corridor 7 years: 60%/140% corridor 10 years with 70%/130% corridor is "acceptable." Combine smoothing amounts only to manage "tail volatility."*
BRP/SOA Report	Asset smoothing periods should be limited to five years or less. No discussion of market value corridors. Five-year smoothing with no corridor used for "Standardized Contribution Benchmark." Encourages the consideration of "direct rate smoothing" and other asset and liability cash flow modeling techniques.
GFOA Best Practice	Fixed period asset smoothing with periods of ideally 5 years or less but never longer than 10 years. Smoothing periods longer than 5 years should include a market value corridor.

* Appropriate when the net deferral amount is relatively small (*i.e.*, the smoothed and market values are very close together). The net deferral amount and the period over which the net deferral amount is fully recognized are unchanged as of the date of the adjustment. Avoid using frequent restart of smoothing to achieve *de facto* rolling smoothing. Avoid restarting smoothing only to accelerate recognition of deferred gains (*i.e.*, only when the market value is greater than the smoothed value).

Table 4: Specific Actuarial Funding Policy Recommendations for UAAL Amortization: How Two of the Actuarial Organizations Compare to Each Other and to the GFOA Best Practice

	UAAL Amortization
CCA PPC White Paper	Layered fixed period amortization by source of UAAL; level percent of pay. Model amortization periods: 15 to 20 years for gains and losses 15 to 25 for assumption or method changes Demographic* for plan changes; or 15 for actives, 10 for retirees Combine gain/loss (and other) layers** or restart amortization only to avoid "tail volatility."
BRP/SOA Report	Amortization of gains/losses should be completed over a period of no more than 15 to 20 years. 15-year rolling, level percent of pay amortization used for "Standardized Contribution Benchmark."
GFOA Best Practice	Layered fixed period amortization by source of UAAL; level percent of pay or level dollar. Ideally use a 15 to 20 year range, but never exceed 25 years. Special considerations (*e.g.*, longer periods) for amortizing a surplus.

* Use average future service for actives or average life expectancy for retirees. The amortization period should also be short enough to avoid negative cash flow, where the additional amortization payments are less than the additional benefit payments.

** Combining layers should result in substantially the same current amortization payment. Avoid using restart of amortization to achieve *de facto* rolling amortization. Restart amortization layers when moving from surplus to UAAL condition.

discount rate specified in the BRP/SOA Report. The specified rate would be substantially lower than even the more conservative public pension plan investment return assumptions currently in use.[7]

While some additional sensitivity and risk related disclosures may be appropriate, Segal does not support the disclosure by all public pension plans of the uniformly standardized contribution benchmark proposed by the BRP/SOA Report. Standardized financial reporting is already required by the GASB, based on a discount rate that is adjusted to reflect the projected funding of future benefits.

Conclusion

Actuarial funding policy is a crucial part of pension fund governance, and policymakers and administrators of public pension systems should be prepared to respond to inquiries regarding this recent funding policy guidance.

"Policymakers and administrators of public pension systems should be prepared to respond to inquiries regarding this recent funding policy guidance."

Many plans will find that many of the recommendations are already in place. Sponsors of plans that are not following all of the recommendations may benefit from considering the guidance summarized in this *Public Sector Letter*, including consideration of any justifiable policy differences. Knowing how their plans compare

[7] The BRP/SOA Report states incorrectly that "the primary difference between [the BRP/SOA's] long-term rate of return and the rate used by many plans is that many plans use a historical average return for their discount rate. Other plans assume forward-looking rates, but based on historical average nominal returns, which factor in many different interest rate and inflation environments." In fact, it would be unusual for a public pension plan to set a long-term assumed rate of return in either of these ways. The main reason that the BRP/SOA discount rate is comparatively low is that it uses a particular model for estimating long-term investment returns, one based heavily on current U.S. Treasury security market prices and yield curves.

with the recommendations will help sponsors respond to any questions that may arise, as well as to identify possible policy changes.

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Segal Consulting can help plan sponsors that have not recently reviewed their funding policy to analyze their policies to ensure that they meet the risk profiles and policy objectives of the plan stakeholders. For more information about funding policy reviews, contact your Segal consultant or one of the following experts:

"Knowing how their plans compare with the recommendations will help sponsors respond to any questions that may arise, as well as to identify possible policy changes."

- *Kim M. Nicholl, FSA, FCA, MAAA, EA*
  312.984.8527
  knicholl@segalco.com
- *Paul Angelo, FSA, FCA, MAAA*
  415.263.8273
  pangelo@segalco.com
- *Brad Ramirez, FSA, FCA, MAAA, EA*
  303.714.9952
  bramirez@segalco.com
- *Leon Joyner, Jr., ASA, FCA, MAAA, EA*
  678.306.3119
  rjoyner@segalco.com
- *Cathie G. Eitelberg*
  202.833.6437
  ceitelberg@segalco.com

Segal Consulting

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