FUNDING STANDARDS FOR PUBLIC PENSION PLANS

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FUNDING STANDARDS FOR PUBLIC PENSION PLANS

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A. Overview

Since passage of the Employee Retirement Income Security Act (ERISA) and the establishment of funding standards for pension plans in the private sector, United States Congressional leaders on the Pension Task Force of the House Labor Standards Subcommittee and other Congressional leaders have pondered the vexing question of whether there ought to be a public sector counterpart.[1]

Two fundamental distinctions between the public and private domain have made justification of an affirmative answer almost impossible:

(i) Imposing Federally legislated pension plan funding standards on public jurisdictions raises constitutional questions.[2]

(ii) Unlike private corporations, states, counties and municipalities have the power to tax their critizenry, such power leading to the presumption of perpetual existence[3] and a negating of the need for concern over the financing of "shut down" liabilities[4] or for meeting any other funding criterion.

In the absence of an anticipated compulsion to adhere to a Federal mandate, in the presence of a pervasive feeling that taxing power justifies deficit spending and because legislators responsible for leadership in the public domain have limited tenure (and, accordingly, are not easily held accountable for incrementally assumed deferred obligations), the *need* for funding standards in the public domain is even more critical than for private entities.

While enabling a certain measure of flexibility, well designed funding standards impose the essential requirement that a sponsoring entity must pay for its deferred obligation uniformly and systematically over the period of deferral. Specifically in the public sector, instead of making it acceptable to saddle tomorrow's taxpayers with the price of yesterday's generosity, a successfully structure set of funding standards would compel each generation of the citizenry to pay its funding share of the cost of any pension program or pension program liberlization. Under such an arrangement a public entity will adopt and maintain a pension plan it can afford. There should be no surprises for tomorrow's taxpayers and no broken promises to public servants.

B. Voluntary Adoption of Funding Standards

Federally mandated funding standards for public pension plans are not likely to be an achievable goal even without the constitutional issue. Political resistance would likely be insurmountable.

Nevertheless, if voluntary adoption of funding standards were to accomplish a beneficial objective or serve a beneficial purpose . . . and if, in addition, the funding standards were reasonable, it is not unlikely that self-imposition could be encouraged. Once adopted by a reasonably large number of jurisdictions, others would be less inclined to resist and self-imposition would gradually become the rule rather than the exception.

1. Federal Revenue Sharing

The attachment of "strings" to federal revenue sharing is not without precedent. If self-imposition of funding standards would loosen the strings, the jurisdiction would be beneficially affected.

Whether the withholding of federal revenue sharing (or restrictions on the use of such revenues) for failure to adopt voluntary funding standards is viably different, constitutionally, from the direct imposition of such funding standards, remains to be examined. Certainly such an indirect approach is politically more palatable, particularly if the funding standards are reasonable. It is notable that the withholding of funds due a municipality from a state or country authority (or the withholding of funds due a country from a state authority) is clearly an operating basis for persuading the lesser jurisdiction to adopt pension plan funding standards. The thorny federal constitutional issues are absent. While it might be deemed politically hypocritical to impose pension plan funding standards on municipalities and counties if the imposing state has failed to adopt such standards for its state-wide pension plan, this is no different than mandates of federal policy not imposed on the federal community.

2. Underwriter Ratings

Whether the financial underwriting community would be inclined to attach a more favorable rating to the security issues of a public jurisdiction which voluntarily adopts pension plan funding standards depends on complex financial, psychological, and special technical considerations. Nevertheless, it is clear that the financial community is concerned about "unfunded pension liabilities" in the public domain and would welcome a generally accepted standard by which it could be measurably satisfied that a public jurisdiction is attending to its financial responsibilities in the pension area. Once voluntary adoption of specific funding standards becomes prevalent, it is not unlikely that a less favorable rating would be imposed on a jurisdiction which chooses to ignore these standards.

3. Necessary Characteristics of Funding Standards If Self-Imposition Is to Be Acceptable

In order to be palatable for self-imposition, it is deemd essential that funding standards for public pension plans have the following general characteristics:

(i) They should be non-disruptive, enabling an easy transition from funding practices previously followed.

(ii) They should respond to reform, i.e., call for an immediate lowering in funding obligation in reflection of any legislative benefit reduction for *new* employees.

(iii) They should foster the distribution of a reasonably equitable share of the aggregate pension funding financial burden on each generation of taxpayers, apportioning the accumulated "debts" of the period prior to the adoption of funding standards to *all* future generations of taxpayers, not just to the generation which benefitted from any funding indiscretions.

(iv) They should prompt an early and significant response to differences between estimated plan costs and actual experience, but such response should not be so sudden and erratic as to adversely impact on the budgeting process.

C. Summary of Proposed Funding Standards

The following is a summary of the recommended funding standards. Special details are presented in Section D. This is followed by an Illustrative Worksheet and Scenario with an explanatory Appendix and a Glossary of Terms.

1. Regardless of other determinations, the sponsoring jurisdiction's funding requirement (expressed as a percentage of covered payroll) shall not exceed the prior year's funding requirement by more than one tenth thereof. Nor shall said funding requirement be less than the prior year's funding requirement by an amount in excess of one thenth thereof. (If greater, 1% of payroll shall be substituted for one tenth of the prior year's percentage of payroll funding requirement.)

   a. *Illustrations:* If the sponsoring jurisdiction's prior year funding requirement is 13.0% of payroll, the current year's funding requirement may not exceed 14.3% of payroll nor be less than 11.7% of payroll. If the sponsoring jurisdiction's prior year funding requirement is 8.5% of payroll, the current year's funding requirement may not exceed 9.5% of payroll nor be less than 7.5% of payroll.

   b. *Purpose:* The purpose of this standard is to avoid budget disruption, enabling an easy transition from funding practices previously followed and avoidance of erratic future requirements.

   c. *Special Feature:* The initial "prior year funding requirement" shall be deemd the average percentage of payroll contributons deposited in the fund by the sponsoring jurisdiction with respect to those of the three fiscal years out of the five fiscal years preceding the promulgation of funding standards for public pension plans which include neither the lowest nor the highest percentage of payroll year.

2. To the extent that because of the smoothing characteristics described above, the funding requirement is less or more than otherwise determined, the dollar differential shall be carried forward in full as a "gain" or "loss" to be later applied.

3. The unadjusted funding objective for any one year shall be the amount resulting from application of the sum of two percentages to aggregate covered payroll:

   (i) a new entrant "normal cost" percentage, i.e., that particular percentage which, if applied to new entrant payroll throughout the career of a typical group of new entrants and supplemented by new entrant employee contributions (if any), would be expected to finance, over their respective working lifetimes, all benefits and refunds for said group of new entrants, plus

   (ii) a "cost differential" percentage, reflecting that percentage which, if applied to the current and all future payrolls, would be expected to halve, after each future 35 year period, the ratio of the "cost differential"[5] to payroll.

   a. *Illustration:* If the "normal cost percentage" for a typical new entrant group is 10% of payroll, the single sum value of benefits and refunds for current active participants, retirees and beneficiaries, is $50 million; assets on hand are $6 million; the present value of employee contributions for current participants is $8 million; current payroll is $22 million; the present value of current and future payroll for current participants is $160 million; and the denominator of the fraction leading to the cost differential percentage is $500 million[6]; then the cost differential percentage is the ratio: 100 times the cost differential (i.e., $50 million minus $6 million minus $8 million minus 10% of $160 million = $20 million), divided by $500 million, or 4% of payroll.[7] The unadjusted funding objective is established, accordingly, at 14% of payroll.

   b. *Purpose:* By making the new entrant "normal cost percentage" the controlling cost component, the impact of pension reform is more readily recognized and the taxpayers more quickly rewarded. By way of illustration, if, because of benefit reduction, the "normal cost percentage" for the typical new entrant group became 7% of payroll (rather than 10% as illustrated in subparagraph a), then the cost differential would be $50 million minus $6 million minus $8 million minus 7% of $160 million = $24.80 million, such result divided by $500 million, or 4.96% of payroll. The unadjusted funding objective is established, accordingly, at 7% plus 4.96%, or 11.96% of payroll, a reduction of slightly more than 2% in payroll from the prior 14%, even though no benefit reduction has been introduced for *current* employees.

4. The unadjsuted funding objective shall be adjusted by *all* accumulated actuarial losses (i) attributable to the impact of prior smoothing (see paragraph 2 preceding) and (ii) attributable to the quantification of differences between assumptions (as to investment return, salary growth, employee turnover, etc.) and actual experience.

   a. *Illustration:* If the normal cost percentage is 10% of payroll, the cost differential percentage is 4% of payroll and the accumulated actuarial losses equal 7% of payroll, the unadjusted funding objective is 14% of payroll and the funding objective is 21% of payroll.

b. *Why the Funding Standards Do Not Require a "Spreading" of Losses:* The "spreading" of actuarial losses (gains) over a number of years is in itself a smoothing process. The smoothing process described in paragraph 1 makes the spreading of gains and losses unnecessary. Illustration 1.a. in this Section C. indicates how the impact of actuarial losses is dampened by establishing a 14.3% of payroll funding requirement ceiling despite a much higher funding objective determination such as 21%.

c. *Why Gains are Not Recognized In the Adjustment of the Funding Objective:* Gains are not recognized in moving from the unadjusted funding objective to the funding objective. This is a conservative measure and encourages direct steps to revise the assumptions and lower estimated costs. (The only way gains can impact is through an offset to losses.)

d. *How Are Gains Eliminated?* : By appropriately "weakening" the actuarial assumptions (and, accordingly, perhaps reducing the normal cost percentage), estimated costs will be reduced. This may be expected to generate losses which will offset gains.

e. *Impact Observation:* Since accumulated losses are applied directly and totally, causing a progression of percentage of payroll increases if unchecked, there is incentive to continue "strengthening" actuarial assumptions so that the resulting cost components will be high enough to make such losses negligible. ("Strengthening" on the heels of continued losses regularizes cost recognition, which is a natural spreading process. If "finely tuned", such "strengthening" will eliminate the undesirable progression of pecentage of payroll increases.) Conversely, since gains are not recognized except as an offset to losses, in order to avoid unnecessarily high funding requirements, there is incentive to have them removed by offsetting losses until a "zero" balance is reached. (The "fine tuning" described above will operate just as capably in mitigating gains.)

f. *Purposes:* There are two purposes served by the immediate consideration of all accumulated losses. First, a levelling of percentage of payroll costs is encouraged. (It is better strategy, under the funding standards, to acknowledge an improperly chosen set of assumptions by changing those assumptions to a more appropriate set, such new set chosen to reverse the direction of the losses (or gains) and bring the accumulated imbalance toward zero.) In this fashion a reasonably equitable share of the aggregate pension funding financial burden is more likely to be distributed to each generation of taxpayers. Second, if a significant change in the funding system *is* mandated, radical adjustments can be accommodated in a relatively short number of years. (For example, since smoothing allows a change of up to 1/10th of the prior year result, a *doubling* of the funding requirement can be recognized in just over 7 years.)

5. To the extent that the sponsoring entity will contribute more than the funding requirement, a "cushion" is recorded in a newly established "funding standard account". In subsequent years an otherwise applicable funding requirement can be mitigated to the extent of any balance in the funding standard account. (The funding standard account serves the aforementioned bookkeeping purpose only. It is not a reflection of funded asset balances.)

6. The minimum funding requirement is the sum of two components:

   a. The greatest of (i) the net funding requirement as recorded in paragraph 5, (ii) a "Cash Flow Funding Requirement" and (iii) an " Accumulated Employee Contribution Makeup Requirement",

   plus

   b. The amount required for "Supplemental Obligation Funding". These items are discussed in detail in Section D.

D. Special Funding Standard Details

1. A central characteristic of the proposed funding standards is recognition of the justification for spreading the special cost impact of prior liberal benefit features and past funding inadequacies over future generations of payrolls. This is accomplished by making the new entrant normal cost percentage the controlling cost component. To the extent that the new entrant normal cost percentage, when applied to all covered payrolls, is insufficient (when combined with assets on hand and future employee contirbutions from current participants) to complete the funding of a plan, a "cost differential" is established to accommodate the remainder. The funding of the cost differential is spread over future generations of participants.

   a. Clearly, if special benefits are awarded to current employee groups (but not to all future employees), another increment would be added to the "cost differential". Since the "cost differential" is financed over the payrolls of all current and future participants, the "real" cost of such a special award would be disguised.

   b. Accordingly, when such special awards are granted *subsequent to adoption of funding standards,* in addition to the otherwise determined funding requirement, a Supplemental Obligation Funding, SOF, requirement is created. The SOF cost of a special award is spearately financed (in a special asset account) over the future payrolls of only those covered employees in the employ of the jurisdiction at the time of the special award.

2. The minimum funding requirement then becomes the sum of the Supplemental Obligation Funding Requirement *and* the greatest of three other costing determinations:

(i) "funding requirement" minus the balance, if any, in the "funding standard account",

(ii) a "Cash Flow Funding Requirement", or

(iii) an "Accumulated Employee Contribution Makeup Requirement".

The first of these three alternatives is fully discussed is Section C. "The Cash Flow Funding Requirement" and the "Accumulated Employee Contribution Makeup Requirement" are discussed in the next two paragraphs.

3. Under circumstances of a mature population of participants (which includes a large number of pensioners and beneficiaries), it is possible that the "funding requirement minus the balance, if any, in the funding standard account" will, when added to funds on hand, be insufficient to accomodate cash flow. The "Cash Flow Funding Requirement" establishes that the current year's funding shall be no less than the amount which must be added to assets on hand (if any) to meet anticipated cash flow requirements over the period ending six months beyond the date of the next minimum funding deposit. (This minimum requirement would be supplemental to the SOF requirement described in paragraph 1 of this Section D.)

4. The "Cash Flow Funding Requirement" is likely to be applicable only to poorly funded *non-contributory* pension plans. When a plan is contributory, the benefits of a poorly funded plan would tend to be financed out of employee contributions. Because the jurisdiction could be held hostage by a threatened "ren" on employee contributions, it is appropriate that the integrity of accumulated employee contributions be maintained and such "borrowing" from the participating employees avoided. Accordingly, the proposed public pension plan funding standards incorporates an "Accumulated Employee Contribution Makeup Requirement", which shall, if higher, replace the "Cash Flow Funding Requirement". This "makeup" requirement shall be as follows:

a. As of the effective date of adoption of funding standards, the credited accumulated employee contributions (for those participants not currently receiving benefits) are compared with the market value of assets on hand. One tenth of the difference is the first year minimum.

b. One year later, the new level of credited accumulated employee contributions is compared with the then market value of assets on hand. One ninth of the difference is the second year minimum.

c. etc.

As with the alternative "Cash Flow Funding Requirement", the applicable "Accumulated Employee Contribution Makeup Requirement" would be in addition to the Supplemental Obligation Funding Requirement as described in paragraph 1 of this Section D.

5. As a final ingredient of these funding standards, provision must be made for strict adherence to an established procedure for divestiture of any of the sponsoring jurisdiction's securities which had been purchased during an emergency (such as Municipal Assistance Corporation bonds recently acquired by New York State systems).

a. While such acquisitions are normally to be avoided for reasons of risk or inadequate investment return, some cogent arguments in justification of such investments (under extreme circumstances) have been advanced.[8]

b. Moreover, in a recent court decision, the trustees of a pension system purchasing such securities under the emergency circumstances deemed present at the time, were determined not to have breached their fiduciary duty.[9]

It is proposed that funding standards for public pension plans include the provision that such securities must be divested in level installments over the ten year period commencing five years after emergency acquisition.

FUNDING STANDARD WORKSHEET AND ILLUSTRATIVE SCENARIO

APPENDIX (Comments and Observations on Funding Standards *Worksheet and Illustrative Scenario)*

GLOSSARY OF TERMS

* * *

The next three sections provide the technical detail pertinent to a comprehensive presentation of the proposed funding standards.

* * *

It is to be recognized that in order to communicate and illustrate the operational characteristics of the proposed funding standards, a scenario with unusual features was selected. In particular, the aggregate annual payroll growth rate was allowed to "swing" widely from as little as 1.898% to as much as 13.358%. Moreover, single year actuarial losses (gains) of considerable (and unlikely) size were introduced, ranging from a loss of $1.054 million to a gain of $3.045 million, in relation to expected "cost differentials" of $27.356 million and $33.350 million, respectively. The liberties so assumed are intended to illuminate the underlying concepts.

FUNDING STANDARD WORKSHEET AND ILLUSTRATIVE SCENARIO
(See Appendix Explanation and Discussion)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	(000,000 omitted from all costing determinations)					
(1) Assumed annual percentage rate of investment return:	7.000%	7.000%	6.000%	6.000%	6.000%	6.000%
(2) Assumed normal cost percentage for new entrant group						
(a) current year:	6.000%	6.000%	7.500%	7.500%	7.500%	7.500%
(b) prior year:	NA	same	6.000%	same	same	same
(3) Single sum value of future benefits and refunds for active and retired employees						
(a) based on current year assumptions:	$59.800	$64.650	$78.505	$81.452	$89.159	$95.304
(b) based on prior year assumptions:	NA	same	70.135	same	same	same
(4) Assets (at market):	16.000	18.225	21.034	23.339	26.354	30.827
(5) Present value of current and future employee contributions for current active employees						
(a) based on current year assumptions:	9.000	9.225	10.018	10.422	13.000	13.388
(b) based on prior year assumptions:	NA	same	9.405	same	same	same
(6) Current payroll:	20.000	20.600	20.991	22.054	25.000	25.905
(7) Percentage rate of growth in annual payroll						
(a) current rate: $[100(6) \div (6)_{-1}] - 100$	5.000%	3.000%	1.898%	5.064%	13.358%	3.620%
(b) current rate minus 2%: (7a) – 2.000%	3.000%	1.000%	-0.102%	3.064%	11.358%	1.620%
(8) Present value of current and future payroll for current active employees						
(a) based on current year assumptions:	$180.000	$184.500	$200.350	$208.444	$260.000	$267.753
(b) based on prior year assumptions:	NA	same	188.100	same	same	same
(9) Cost differential: (3) – (4) – (5) – .01(2)(8)						
(a) based on current year assumptions:	24.000	26.130	32.427	32.058	30.305	31.008
(b) based on prior year assumptions:	NA	same	28.410	same	same	same

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	(000,000 omitted from all costing determinations)					
(10) Present value of current and future payroll for current and future generations of employees if rate of growth is reflected by (7b): if (1) – (7b) > 0,(6) [1 + .01(1)] ÷ .01[(1) – (7b)], but ≠ (8a); if (1) – (7b) ≤ 0, ∞	535.000	367.367	364.642	796.228	∞	626.925
(11) Current year percentage of payroll allocation toward "amortization" of cost differential: 100(9a) ÷ (10)	4.486%	7.113%	8.893%	4.026%	0.000%	5.611%
(12) Funding objective before adjustments for (i) accumulated actuarial losses, (ii) "smoothing" from prior funding requirement level and (iii) funding standard account utilization						
(a) percentage of payroll: (2a) + (11)	10.486%	13.113%	16.393%	11.526%	7.500%	13.111%
(b) dollars: (6)(12a)	$2.097	$2.701	$3.441	$2.542	$1.875	$3.396
(13) Loss (gain) reflected by difference between actual and expected cost differential as result of prior year experience						
(a) expected cost differential: $[(9a) + .01(2a)(6) - (20)]_{-1}[1 + .01(1)_{-1}]$	NA	25.359	27.356	33.921	33.350	31.143
(b) loss (gain): (9b) – (13a)	NA	0.771	1.054	-1.863	-3.045	-0.135
(14) Accumulated losses (gains): $(17)_{-1}[1 + .01(1)_{-1}]$ + (13b)	NA	1.427	3.615	3.521	0.946	-0.135
(15) Funding objective after adjustment for accumulated actuarial losses						
(a) percentage of payroll: greater of (12a), or (12a) + 100(14) ÷ (6)	10.486%	20.040%	33.615%	27.491%	11.284%	13.111%
(b) dollars: (6)(15a)	$ 2.097	$ 4.128	$ 7.056	$ 6.063	$ 2.821	$ 3.396
(16) Funding requirement: (15) subject to "smoothing" limits						
(a) percentage of payroll: $[(16a)_{-1}^{*} - \Delta] \leq (15a) \leq [(16a)_{-1}^{*} + \Delta]$	7.420%	8.420%	9.420%	10.420%	11.284%	12.412%
where Δ = greater of 10% of $(16a)_{-1}^{*}$ or 1%:	1.000%	1.000%	1.000%	1.000%	1.042%	1.128%
(b) dollars: (6)(16a)	$ 1.484	$1.735	$1.977	$2.298	$2.821	$3.215
(17) Accumulated losses (gains) after adjustment for impact of current year "smoothing" limitation: if (14) ≥ 0, (15b) – (16b); if (14) < 0, (14) + (15b) – (16b)	0.613	2.393	5.079	3.765	0.000	0.046
(18) Funding standard account balance before current year contributions: $(21)_{-1}[1 + .01(1)_{-1}]$	NA	0.017	0.088	0.118	0.074	0.056
(19) Minimum funding requirement: (16b) – (18), but not less than the greater of "Cash Flow Funding Requirement" or "Accumulated Employee Contribution Makeup Requirement", plus "Supplemental Obligation Funding"**	1.484	1.718	1.889	2.180	2.747	3.159
(20) Actual funding contribution, discounted to beginning of current year at rate in (1)	1.500	1.800	2.000	2.250	2.800	3.200
(21) Funding standard account balance after current year contribution: (18) + (20) – (16b)	0.016	0.082	0.111	0.070	0.053	0.041

* see text for first year value of $(16a)_{-1}$

**see text for discussion of "Cash Flow Funding Requirement", "Accumulated Employee Contribution Makeup Requirement" and "Supplemental Obligation Funding"

APPENDIX

Comments and Observations on Funding Standard Worksheet and Illustrative Scenario (See Glossary of Terms Which Capsulizes This Appendix)

1. Lines 1 and 2 of the Funding Standard Worksheet (FSW) record key assumptions utilized in other parts of the FSW. The investment return assumption is a net of expenses, long range, assumption. It reflects capital appreciation and depreciation as well as interest income.

2. The "normal cost" percentage for new entrant groups, NC%, is that percentage of future new entrant payrolls which, when added to employee contributions, may be expected to fully finance benefits and refunds for any new entrant group. The normal cost percentage is to be selected by the public entity based on a set of assumptions as to investment return, salary increases, turnover, etc., as well as on the age and sex distribution deemed most reflective of future new entrant groups.

3. In the year after a change in the assumed normal cost percentage (a change which might take place because future new entrant benefits have been changed or because the actuarial assumptions have been modified), *both* the prior year *and* current year normal cost percentages are recorded in line 2 to facilitate a determination of the "actuarial gain" ("loss") attributable to experience during the year past. (This is discussed further in line 13b.)

4. Lines 3 through 11 develop the supplemental percentage of payroll required to make up for the fact that the new entrant normal cost percentage fails to finance all of the cost for *current* participants. Lines 3 through 9 produce the "cost differential" which is divided by the "present value of projected future payrolls if rate of payroll growth is two percentum less than estimated" (line 10) to determine the supplemental percentage (line 11).

5. Line 3 records the actuarially discounted present value of all future benefits and refunds, PVB, for current employees, retirees and beneficiaries *not* including the value of such benefits as they relate to future employees).

6. Line 4 records assets in the fund, A, computed at their actual market value. (Both common stock and fixed income securities are treated in like fashion. Cost, book and par values are ignored.)

7. Line 5 records the actuarially discounted present value of current and future employee contributions, PVEC, for current employees (but does *not* include the value of such contributions as they relate to future employees).

8. Line 6 is the current payroll of covered participants, P.

9. Line 7a establishes the current rate of growth, r, in covered payroll and line 7b records the projected rate of growth if it were 2 percentum less than the current rate of growth.

10. Line 8 establishes the actuarially discounted present value of current and future payroll, PVPC, for current employees (but does *not* include the discounted value of payroll for future employees).

11. Line 9 is the "cost differential", CD. Algebraically, CD is PVB-A-PVEC-NC% (PVPC). Thus, CD is what remains to be funded for current active employees, retirees and beneficiaries after provision is made for assets on hand, future employee contributions by current active employees and new entrant normal cost percentages applied to future payrolls of current active employees.

    a. It is to be noted that, theoretically, no CD is anticipated on behalf of new employees groups since the NC% applied to future payrolls of new entrant groups has been selected to exactly balance PVB-PVEC for such new entrants.

    b. However, as in any theoretical exercise, there are differences between fact and assumption. If a new entrant group is such that its PVB-PVEC is not exactly balanced by its NC% (PVPC), there will be supplements (or decrements) to CD in future years. This will show up in line 13b (actuarial "gains" or "losses").

    c. The "cost differential" is not to be confused with the so-called "unfunded past service liability" of a pension plan. The cost differential replaces the unfunded past service liability in the procedure outlined on the FSW. It differs from the unfunded past service liability in two basic respects:

        (i) The cost differential is automatically increased by a lower normal cost percentage for new entrants. (A so-called unfunded past service liability would be unaffected by the normal cost percentage for future new entrant groups. Its determination is generally based on the group of currently active employees.) Accordingly, pension reform reflected by lower benefit costs for new entrant groups, causes a shift in cost attribution from "normal cost" to "cost differential".

        (ii) The cost differential is scheduled for "amortization" over current and future generations of employees but is never expected to disappear totally. [In contrast, the so-called unfunded past service liability is generally scheduled for amortization to zero over a finite number of years and is cause for a higher anticipated percentage-of-payroll funding cost in the early years than in the later years (after amortization).]

    It is for the combination of reasons described in (i) and (ii) that pension reform causes immediate taxpayer relief. Reform leads to a shift in cost attribution from the "immediately recognized" current service cost to the "gradually recognized" cost differential.

12. Line 10 is the present value of current and future payroll for current and future generations of employees under the assumption that aggregate payroll will increase into the infinite future at a rate two percentum slower (see paragraph 13 for an explanation of the choice of two percentum) than the rate of growth currently observed.

    a. It is to be recognized that if the assumed long range rate of investment return exceeds this perceived rate of growth in payroll, then the discounted present value of future generation payrolls is finite. Otherwise it is infinite.

    b. It is also to be observed that because of the significant year to year fluctuation in rate of payroll growth (decline), the annually determined discounted present value of future generations of payroll is likely to vary widely. (This impact could be dampened by introduction of a moving average of several years' rates of growth (or decline), a reasonable and acceptable alternative approach although not necessary since "smoothing" inhibits wide variation in "bottom line" results.)

13. Line 11 is CD%, the current year's percentage of payroll allocation toward "amortization" of the cost differential. It is 100 times the ratio of the cost differential to the present value of current and future generations of payroll, CD ÷ PVPG, under the assumption that future payroll will increase two percentum slower than expected.

    a. The word "amortization" is recorded in quotation marks because it is not the cost differential that is being amortized but rather the relationship between the cost differential and payroll.

    b. If payroll will continue to increase as indicated by the current growth rate, then it may be demonstrated that the relationship between cost differential and payroll will be halved after approximately 35 years as a result of servicing the cost differential through the continued application of the line 11 ratio to current payroll.[10] [Note that "halving" in *35* years is suggested by the 30-40 year past service liability amortization periods mandated in the private sector Employee Retirement Income Security Act funding standards. If "halving" were desired in, say, 50 years, then two percentum would be replaced by 1.4 percentum. As a "rule of thumb", divide the desired "halving" period into 70.]

14. Line 12 records the unadjusted funding objective. The sum of the normal cost percentage and the cost differential amortization percentage produces the unadjusted funding objective percentage, UFO%.

15. Line 13 reflects the quantification of the unfavorable (or favorable) experience during the past year. The expected cost differential [which is the sum of the prior year cost differential and normal cost, net of the prior year contribution, such quantity increased by the assumed prior year investment return] is subtracted from the recomputed cost differential. A positive LCD(= CO-ECD) result reflects a "loss" attributable to the circumstances described in paragraph 11b or to unfavorable experience in the current employee group. A negative LCD result reflects a "gain".

16. Accumulated losses (gains), AL, are recorded in line 14. They are the prior year unrecognized accumulated losses (gains), AL', increased with the assumed prior year investment return and supplemented by the new LCD.

17. Line 15 reflects the determination of the funding objective percentage, FO%, which is the unadjusted funding objective, UFO%, after adjustment for the impact of accumulated losses (expressed as a percentage of payroll). It is to be noted that the adjustment is only positive, i.e., FO% is always greater than or equal to UFO%.

    a. Gains are recognized in the funding objective percentage only indirectly, i.e., as an offset against losses.

    b. The effect of non-recognition of gains is to encourage re-examination of the underlying assumptions. (A significant gain "build-up" is of little value to the sponsoring jurisdiction, except as a cushion against an unusual loss, a circumstance which, even without the gain "build-up", would have only moderate immediate effect on funding requirements because of smoothing, per line 16 of FSW.)

18. Line 16 of the FSW is the "bottom line". Because FO% is subject to variation from year to year, partially because of "swings" in PVFG, partially because of the impact of changes in assumptions (particularly as they affect the normal cost percentage) and partially because of the impact of losses, and since consistency as to allocated public pension costs from one year to the next is necessary to prevent disruption of budgets, the FO% determination in line 15 is subjected to "smoothing".

    a. The smoothing process establishes that FR% for any given year can be no more than greater of, either, 1.1 x FR% for the prior year, or, FR% for the prior year plus 1%. Moreover, FR% for any given year cannot be less than the smaller of, either, 0.9 x FR% for the prior year, or FR% for the prior year minus 1%.

    b. If FO% falls *within* these bounds, then FR% is set at FO%. If FO% falls outside of these bounds at the upper end of the limit, then FR% is set at the upper limit. If FO% falls outside of these bounds at the lower end of the limit, then FR% is set at the lower limit.

19. Because of the "smoothing", FR (which is the application to FR% to payroll) may be less than FO (reflecting FO recognized accumulated losses not introducable to FR because of limits) or greater than FO (reflecting supplementation of accumulated "non FO-recognized" gains). These losses (gains) are captured in line 17 of the FSW, along with any gains not previously considered in the development of FO. The resulting sum AL', is ready for carryover to the next funding year.

20. Line 18 records FSA, which is the prior year FSA' (see paragraph 23) increased by the assumed prior year rate of investment return.

21. Line 19 presents the minimum funding requirement, MFR, which, under normal circumstances, is FR reduced by the FSA balance. However, in no event may the MFR be any less than the greater of the amount required to pay cash benefits and refunds during the ensuring year (the "Cash Flow Requirement") or an amount which in ten level installments may be expected to restore accumulated employee contributions previously utilized to pay benefits (the "Accumulated Employee Contribution Makeup Requirement"). Moreover, MFR includes any necessary Supplemental Obligation Funding, SOF. The SOF component of MFR may be explained as follows.

    a. If there had been benefits awarded to a special group of employees (but not to all future employees) *after* adoption of the funding standards, a CD component is created without a concomitant change in NC%. Since CD is amortized gradually over the infinite future it would be possible to abuse the system by indiscrete introduction of special benefits for current employees, the cost of which would be obscured by allocation into the future. This would be an unintended result.

    b. Since a benefit liberalization for current employees, only, is unusual, the proposed funding standards require such a liberalization to be separately funded, over the payroll of the *current* employee group, in a Special Obligation Fund, carved out of the plan assets. Funding requirements for any year are the present value of future SOF benefits less current SOF assets, such difference divided by a modified PVPC which excludes new employee groups ineligible for the benefit liberalization. This amount is to be reduced by: the present value of future SOF benefits, less SOF assets, such difference divided by PVPG (the offsetting amount reflecting funding already acknowledged for the SOF benefits within the regular FSW procedures).

22. Line 20 records CN, the actual plan sponsor contribution (which must not be less than MFR + SOF).

23. Line 21 develops FSA', which is the funding standard account after FR is substracted and CN is added. FSA', which is increased with the assumed investment return to become next year's FSA, must not be negative.

1 "A key retirement issue facing Congress is whether public plans can and should be required to meet federally prescribed funding standards." See RAY SCHMITT, MAJOR ISSUES FACING THE PRIVATE PENSION SYSTEM, Congressional Research Service (prepared at the request of the Honorable Fred B. Rooney, Chairman, Subcommittee on Retirement Income and Employment, and the Honorable Claude Pepper, Chairman, House Select Committee on Aging), January 27, 1978 at 41.

2 Legislation such as the proposed Public Employee Retirement Income Security Act which was introduced in the 94th Congress (H.R. 13040) "may exceed the constitutional power of Congress to interfere with the affairs of state governments as enunciated in *National League of Cities* v. *Usery*, 96 S. Ct. 2465 (1976)". See "PUBLIC EMPLOYEE PENSIONS IN TIMES OF FISCAL DISTRESS", HARVARD LAW REVIEW, Vol. 90, No. 5 March 1977, note 134 at 1017.

3 "Although ERISA prescribed standards of funding that private pension plans are required to meet, some opponents of full funding of public plans argue that public plans are quite different from private plans. They maintain that public plans can continue to operate satisfactorily on a pay-as-you-go basis, or on some other modified basis short of full funding, as long as the taxing power of the government unit can support the plan." See RAY SCHMITT, *supra* note 1, at 41.

4 BERNARD JUMP, JR., identifies "plan termination liability" as the most appropriate measure of funding and funding progress. "By reviewing the plan's 'asset-to-plan termination liability' ratio over time, an analyst can begin to get a good fix with respect to the employer's success in providing for accumulating liabilities." Nevertheless, "conclusion about the significance of a decline in [this] ratio should not be reached without supporting details as not all decreases reflect adversely on a plan's fiscal integrity. For example, one plan's decrease may be the result of an infrequent and modest enrichment of benefits whereas another's may simply be the latest manifestation of a chronic tendency to provide substantial enrichment." See "EVALUATING THE FINANCIAL CONDITION OF PUBLIC EMPLOYEE PENSION PLANS: SOME GUIDELINES FOR THE UNWARY", GOVERNMENTAL FINANCE (published by the Municipal Finance Officers' Association of the United States and Canada), February 1978, at 6-7.

5 "Cost differential" is that portion of plan costs not financed (i) by assets on hand, (ii) by future payments of new entrant normal cost percentage multiplied by payrolls and (iii) by employee contributions. Note that in the absence of change in benefit structure and, if experience matches assumptions, the "cost differential" becomes and remains the cost remainder *attributable to current employees only* since future employees are accommodated, by definition, through new entrant normal costs and new entrant employee contributions.

6 The denominator of the fraction leading to the cost differential percentage is the present value of current and future payroll for all future generations of employees under the assumption that payroll will grow (decline) at a rate two percentum per year less than anticipated (e.g., if the rate of growth is anticipated to be 3% per annum, on the assumption that it will grow, instead by 1% per annum). This 2% differential accounts for the halving in 35 years. See footnote *10* in the Appendix.

7 If experience matches assumptions,then the amount designation for the "servicing" of the cost differential will be less than the investment return thereon and, as a result, the cost differential will increase each year in

the future. In the illustrative example, 4% of the $22 million payroll (increased by one year's investment return) will be less than investment return on the $20 million cost differential. Nevertheless, after 35 years the ratio of cost differential to payroll will have been halved. In the instant case, it has been assumed that payroll will grow at the rate of 3% per year. Accordingly, the following will be the result of 35 years' "amortization" of the ratio:

	Cost Differential	Payroll	Ratio
Now	$20.00 million	$22.00 million	91%
In 35 Years	28.33 million	61.90 million	46%

8 See *generally* "PUBLIC EMPLOYEE PENSION PLANS IN TIMES OF FISCAL DISTRESS", HARVARD LAW REVIEW, *supra* note 1.

9 *Withers, et al. v. Teachers' Retirement System of the City of New York, et al.* (No. 76 Civ. 4474, March 9, 1978).

10 $P_{35} = P_0 (1 + r)^{35}$, whereas $CD_{35} = CD_0 (1 + r - .02)^{35}$

$$\frac{CD_{35}}{P_{35}} = \frac{CD_0}{P_0} \times \frac{(1 + r - .02)^{35}}{(1 + r)^{35}},$$ which is between .49 and .51 for $-.02 \leqslant r \leqslant .06$

GLOSSARY OF TERMS

Symbol	Worksheet Reference Line	Identification	Formula
i_t	(1)	assumed long range rate of investment return	N.A.
$NC\%_t$	(2)	normal cost percentage assumption (deemed reflective of the percentage of payroll which, when added to employee contributions, may be expected to fully finance benefits and refunds for any future group of new employees)	N.A.
PVB_t	(3)	value of benefits and refunds for current active retired participants and beneficiaries determined as of the beginning of year t	N.A.
A_t	(4)	assets (at market) at beginning of year t	N.A.
$PVEC_t$	(5)	value of employee contributions for current active participants as of the beginning of year t	N.A.
P_t	(6)	payroll of covered participants at beginning of year t	N.A.
r_t	(7)	rate of growth in payroll as of the beginning of year t	$(P_t \div P_{t-1})-1$
$PVPC_t$	(8)	value of current and future payroll for current active participants as of the beginning of year t	N.A.
CD_t	(9)	"cost differential", i.e., amount left unfunded for current active and retired participants and beneficiaries as of the beginning of year t if, in addition to employee contributions, only new entrant normal cost percentages of payroll are contributed for current active participants.	$PVB_t - A_t - PVEC_t - NC\%_t\ (PVPC)_t$
$PVPG_t$	(10)	Value, as of the beginning of year t, of current and future payroll for current and future generations of employees if future compound annual rate of growth in payroll will be less than current rate of growth by two percentum; note, such value may not be less than $PVPC_t$	if $i_t - r_t > 0$, $P_t (1 + i_t) \div (i_t - r_t)$; if $i_t - r_t \leq 0{,}00$; in no event less than $PVPC_t$
$CDC\%_t$	(11)	percentage of current payroll allocated as of the beginning of year t toward "amortization" of the "cost differential", if r_t is assumed to remain constant and the term "amortization" means the payment of an amount which is part of a level percentage of payroll stream expected to produce a ratio between CD and P after 35 years which is one-half the initial ratio (i.e., where $CD_{t+35} \div P_{t+35} = .5\ CD_t \div P_t$)	$100\ CD_t \div PVPG_t$
$UFO\%_t$	(12a)	unadjusted funding objective percentage determined as of the beginning of year t, i.e., percentage of payroll funding objectives reflecting current normal cost percentage plus current indication of percentage of payroll needed to produce a "halving" of the ratio "CD to Pay" over 35 years.	NC% + CDC%
UFO_t	(12b)	$UFO\%_t$ converted to dollars	$UFO\%_t\ (P_t)$
ECD_t	(13a)	expected value of "cost differential" at beginning of year t	$[CD_{t-1} + NC\%_{t-1} (P_{t-1}) - CN_{t-1}] (1 + i_{t-1})$
LCD_t	(13b)	actuarial "loss" (or "gain") in "cost differential" i.e., recomputed value of "cost differential" minus expected value of "cost differential," reflecting financial impact of differences between actual and expected experience in the year t-1 to t	$CD_t - ECD_t$

Symbol	Worksheet Reference Line	Identification	Formula
AL_t	(14)	accumulated prior "losses" ("gains") attributable to accumulated differences between funding *objectives* and funding *requirements* (as stipulated by the funding standard rules), plus the new "loss" ("gain") in "cost differential" for the year t-1 to t, all determined as of the beginning of year t	$AL_{t-1}' (1 + i)_{t-1} + LCD_t$, where AL_{t-1}' is the accumulated "losses" ("gains") of prior year, after adjustment for "smoothing" losses (gains) [see below]
$FO\%_t$	(15a)	funding objective percentage at the beginning of year t, i.e., percentage of payroll funding objective after taking into account accumulated "losses", A_t, if any	$UFO\%_t + 100\ AL_t \div P_t$, but not less than $UFO\%_t$
FO_t	(15b)	funding objective, in dollars, as of the beginning of year t	$FO\%_t\ (P_t)$
$FR\%_t$	(16a)	funding *requirement* percentage at the beginning of year t which shall be the same as the funding *objective* percentage, except that no funding requirement percentage shall exceed (or be less than) the *prior year* funding requirement percentage by an amount in excess of "delta" ($\triangle$), where $\triangle$ is the greater of one-tenth of the prior year funding requirement percentage or 1%.	$FR\%_{t-1} - \triangle\ \%_{t-1} \leqslant FO\%_t \leqslant FR\%_{t-1} + \triangle\ \%_{t-1}$ where $\triangle\ \%_{t-1} = \frac{FR\%_{t-1}}{10} \not< 1$
FR_t	(16b)	funding requirement, in dollars, as of the beginning of year t	$FR\%_t\ (P_t)$
AL_t'	(17)	accumulated "losses" ("gains") at the beginning of year t after taking into account the "smoothing" impact of requiring a contribution of FR_t rather than FO_t	$FO_t - FR_t$, but not more than $AL_t + FO_t - FR_t$
FSA_t	(18)	funding standard account balance at the beginning of the year t before impact of transactions during the year	$FSA'_{t-1}\ (1 + i_{t-1})$
MFR_t	(19)	minimum funding requirement on behalf of the year t, i.e., the funding requirement reduced by any balance in the funding standard account as of the beginning of year t	$FR_t - FSA_t$
CN_t	(20)	contribution actually made on behalf of year t, discounted to beginning of year at increase rate i_t	N.A.
FSA_t'	(21)	funding standard account balance as of the beginning of year t after impact of transactions for the year t	$FSA_t + CN_t - FR_t$