Solution 1

(a) Design of disability benefits:

- Well-designed plan because:
  - ⇒ Allows additional accrued benefits as long as disabled
  - ⇒ Can receive unreduced pension at any age
- Definition should be covered in plan documents.
  - ⇒ No fixed definition of the term "disability"
    - Own occupation or any occupation.
  - ⇒ Can reduce adverse selection.
    - Withhold protection for a number of years after entry.
    - Exclude benefit payments for disability from pre-existing conditions.
    - Exclude permanently coverage from pre-existing conditions.
  - ⇒ Integration with early retirement
- Primary or secondary position: Social Security disability.
- What about rehabilitation?
- Total benefits should be less than if they had continued to work.
- Better coordination if all benefits provided by one plan.

(b) Effect of plan changes on valuations:

- Rate of disability influences by different factors:
- Workforce
- Definition
- Benefits
  - ⇒ Administration
  - ⇒ After disability, generally mortality is higher (separate assumption).
  - ⇒ Data sources (Private plans, Social Security, insurance companies, SOA, etc.)
  - ⇒ Nature of disability-termination rates (S&U, aggregate or intermediate)
  - ⇒ Rates of recovery
- Vesting has been accelerated.
  - ⇒ Consider higher withdrawal rates during first 5 years.
  - ⇒ Liabilities for those who were previously non-vested will increase.
- Early retirement may be attained 5 years earlier.
  - ⇒ Need retirement rates starting at age 50.
  - ⇒ Need withdrawal rates ending at age 50 + 10
  - ⇒ Liabilities will be higher, reflecting earlier eligibility/commencement.
  - ⇒ Normal cost will also increase.
- Negotiated benefit multiplier is higher.
  - ⇒ Retirement rates may decrease (higher benefit provides incentive to stay) or increase (higher benefit allows employee to afford retirement) – need to monitor.
  - ⇒ Liability is proportionally (80/75) higher.
  - ⇒ Normal cost will be similarly higher.
- Early retirement subsidy is reduced.
  - ⇒ May need to consider lighter retirement rates for ages prior to full retirement age.
  - ⇒ Liabilities will go down slightly.
- IAS 19 expense valuation has changed.
  - ⇒ Immediate vesting.

Solution 2

(a) Option 1:

SmallSub benefits remain with the SmallSub pension plan and with LargeCo as plan sponsor.

- If assets in SmallSub plan do poorly, who will be responsible for putting more money in the plan (LargeCo or NOC?)
- What happens if LargeCo decides to wind up or terminate the plan?
- What will happen to any plan surplus?
- NOC will not be responsible for the actuarial valuations of the LargeCo plan.
- Different actuarial assumptions and/or good asset returns could lead LargeCo to be taking contribution holidays. This could affect the funded status of the SmallSub plan and therefore affect SmallSub's benefits.
- Having the benefits not in the NOC plan means that NOC has no control over the security of those benefits.
- What if earnings increase significantly? Is the SmallSub benefit frozen or does LargeCo pay for the increase in liability due to salary increase?

NOTE: LargeCo remains the plan sponsor of SmallSub under Option 1, therefore there are no accounting issues for NOC.

Option 2:

- Becoming the plan sponsor, NOC has the discretion in how to invest the assets, actuarial assumptions, funding methods, that they wouldn't have if SmallSub plan stayed with LargeCo.
- Since this is an asset purchase, NOC will immediately recognize a difference in liabilities vs. assets on its balance sheet. Need to use IAS19 – purchase accounting.
- Probably for the first few years, the frozen accrued benefit would be higher and then, eventually, the 2% benefit formula would become greater than the frozen benefit.
- My concern for NOC would be that SmallSub individuals may terminate, thinking that they are better off to retire/terminate before new benefit kicks in.
- Very important for NOC to communicate though projected benefit calculations, etc., how the SmallSub employees' benefit will look in 5, 10 years, etc., and at retirement.
- Is there a surplus in the SmallSub plan? If so, does a portion of it get transferred to the NOC plan?
- Very important to agree upon the actuarial assumptions that are used when transferring over the frozen benefits
- Are the assumptions based on funding for termination (i.e., solvency assumptions) or going concern (funding, long-term assumptions used)?
- Pricing Issues: Both firms will need to negotiate and agree on liability assumptions, methods, and plan provisions.
- Procedural Issues: Option 1 or Option 2 should be in place by acquisition date to minimize employee insecurity and loss of production. Communication is critical. Purchase agreements, plan documents, transfer agreements, etc., should be in place by the time of acquisition.
- For the purposes of NOC having more control over the former SmallSub company liabilities, I would recommend that they elect Option 2.

(b) Employers are concerned about:
- Protection of accrued benefits
- Substantial continuity of benefits under NOC as plan sponsor.

Option 1:
- Past service stays at 3%.
- Future service accrues at 2%.
- Will have uniform accrual after amendment date.
- Will future salary increases with NOC be reflected in the SmallSub plan administered by LargeCo?

Option 2:
- Past service stays at 3% -- frozen.
- Future service accrues at 2% but
- There is a minimum on all service of 3% for all past service.

Future salary increases with NOC will be reflected in the Salaried Plan administered by NOC.

Not uniform accrual of benefits:
- Effectively no accrual of benefits until member has ⅓ of total service after the date of the amendment.
- Could cause problems with communication of pension benefits.

Have there been any previous updates to benefits of SmallSub plan – for continuity in future?
- Any previous ad hoc or guaranteed pre- or post-retirement indexing (COLA).

Plan Windup

Option 1:
- LargeCo would likely wind up what is left of the SmallSub plan.
- LargeCo may be able to withdraw any surplus remaining.
- Benefits in SmallSub plan would then be paid out in lump sum.
- Employees hired by NOC would then forfeit accrued benefit for lump-sum payout.
- If benefits paid on windup do not include future salary increases, LargeCo reaps *salary projection gain*.
- Employees hired by NOC would then forfeit accrued benefit for lump-sum payout.
- NOC will have no control over SmallSub plan as it is controlled by LargeCo.

Option 2:
- NOC could wind up SmallSub plan and reap salary projection windfall
- This would not be very likely as many members will also be employees of NOC.

Employees concerned about disposition of surplus:
- Astute employees will want to know the funded status of the SmallSub plan before purchase.
- If a surplus exists, employees will want to know how this is divided or disposed of.
- Will any of the surplus be used to upgrade existing benefits?
- Employees of SmallSub concerned about surplus will likely want Option 2 because NOC will control surplus.
- However, under Option 2, employees may be concerned that at a future date, SmallSub plan is combined with Salaried Plan and any surplus in SmallSub Plan would then be shared with existing employees of Salaried Plan

- Under Option 1: Surplus of SmallSub will remain with LargeCo's control and employees will likely not appreciate this.

Need to maintain contact with LargeCo and the old SmallSub plan for administration of benefits not transferred.

Indemnity/Hold Harmless:

- Employees will likely want some sort of "no worse off" guarantee for pension benefits under either option.
- Option 2 would likely provide a better option for this type of guarantee.
- Will need to evaluate the cost of such a guarantee.

Responsibility for inactives under SmallSub plan.

- Under Option 2, NOC will assume responsibility for a number of members who were never employed by NOC This will add to administration costs.

Employees will want communications.

- This will apply to both options.
- Will want clear, accurate, concise information presented to employees.
- Will want to be kept up-to-date along the way.

Employees' "buy-in" or acceptance of each option.

- Option 1 would be easier to communicate but, because LargeCo will remain sponsor of prior benefits, employees may not be accepting of this.
- Option 2 will likely be better accepted.
- Employees may want to be more involved with details of option 1 than option 2.
- Pensions are likely largest asset. Likely older employees will be more concerned than younger employees.
- Future employee relations will be affected by the option chosen by NOC.
- Employees will be looking to NOC for clear demonstration that due diligence was taken and that the employees (of NOC and of SmallSub) have been diligently taken care of.

From employee perspective, option 2 will likely be better accepted.

Solution 3

(a) Compare with 1/1/02 chart.

- Average age and service slightly decrease → reasonable.
- Salary progression seems reasonable.
- Some cells changed significantly: "35-45" under "10-15"
- Net headcount change is +280.

Potential errors in chart:

- Three people, aged "25-35" with ">20 years."
- Mistake in row "35-45?" Total should be 1,492.

ASOP23 guidelines for relying on other's data:

- If not comfortable with data, disclose limitations.

(b)

- Benefit improved for employees having 90 points before age 62 (hired before age 34).
- The cells ">20 years" should be split.
- No funding impact if current retirement age assumption (age 62) is unchanged.
- Retirement assumption needs to change: Earlier of age 62 or 90 points.
- Termination assumption may also change.
- The actuarial liability and current service cost will increase.

Solution 4

(a) Security is not the prime reason for funding public pension plans.

- Benefits are seen as very secure.
- Backed by sponsor's ability to tax.

Key reason for funding is to improve intergenerational equity.

- Financing ensures that public employees will be less of a taxpayer burden after retirement.
- Political pressure increases long-term cost in exchange for short-term accommodation.

Plan funding is more salient and more subject to political influence.

- Contribution is the accounting cost.
- Reduces capacity to spend on other projects.
- Public pension plans are far less governed by an economic bottom line.
  - Represent a long bond obligation, not marked to market.
  - Backed by an enormous asset pool
- The elected administration doesn't see beyond the next election, prefers low-funding cost.

Plans tend to be underfunded.

- Plan sponsors hear all the downside, but do not share upside, asymmetry.
  - Emerging shortfall must be paid by taxpayers.
  - Surplus only partly used to offset contributions.
- When contributions reduced, difficult to increase later.

Public plans are usually contributory.

- Widespread view that surplus belongs to employees.
- Encourages employees to campaign for benefit increases.

Pension funding takes advantage of tax-free buildup of pension assets.

(b) Actuarial assumptions for public and private sector plans are the actuary's best estimate.

- Private plan sponsors exert a good deal of influence on the selection of assumptions.
- Public sector plans permit a wide range of assumptions.

Actuary for private sector plan must produce a number of valuations, for funding, expenses, etc. For a public sector plan, he must produce one valuation on one set of assumptions.

- In private plan valuations, there are unavoidable differences in the assumptions for different purposes.

Formal authority for private sector assumptions belongs to the actuary. For public plans, it depends on the law.

- May be set by governing board.
- May be set by the actuary or a board of actuaries.

Timing of the review of assumptions in the private sector is determined by the actuary. In the public sector, it is set by law

- In a private sector, usually review when gain and loss study reveals large gains or losses

Public sector plan experience is more credible because plans are larger.
Design of public sector plans may require additional assumptions.

(c) **Firefighters**

Generous retirement provisions:

- Because firefighting is physically demanding.
- Typically allow retirement at earlier ages to maintain younger workforce.
- Frequently allow unreduced benefits at age 50 or 55 with 20 years of service; at any age with 25 years.

Flat or unit benefits:

- Retirement formulas often linked to vesting.
- If 20 years of service, often 50% of final average salary.
- If five or ten years vesting, unit benefits.

Few systems offer any early-retirement option with reduced benefits.

Most firefighter plans (80%) offer post-retirement cost-of-living adjustments to protect retirement earnings from inflation.

Purchase of service credits arrangements allow employees to purchase years of employment with their new public sector employer.

Facilitate portability with reciprocity agreements between public plans that permit two public employers to transfer service, funds, or both.

Teachers

Generous early-retirement provisions.

- Generally at 55 with 25 years.
- Reduced actuarially.
- Allow unreduced benefits at age 60.

Early vesting, five or ten years.

A large fraction of the teachers system offers automatic post-retirement cost-of-living adjustments to protect retirement earnings from inflation.

Deferred retirement options to keep experienced, long-term employees by rewarding employees who postpone their retirement by providing a partial lump-sum distribution when they finally leave employment.

Purchase of service credits arrangements allow employees to purchase years of employment with their new public sector employer.

Facilitate portability with reciprocity agreements between public plans that permit two public employers to transfer service, funds, or both.

(d) Government will need to take a total compensation perspective; balance salary and benefit cost.

- Competition for employees with high-tech skills will intensify between the government and the private sector.
- Government may need to increase compensation for particular jobs and occupations.

Benefit packages will need to become more flexible.

- Public employers will evolve from benefit providers to benefit facilitators.

Employer will be challenged to offer benefits valued by employees at various stages of their careers.

To retain older workers, reduce early-retirement incentives.

To encourage retirees to return to work, permit accumulation of additional retirement benefits.

Review the return-to-work limits to remove the barrier to work at older ages.

Portability of pension credits to attract younger and more mobile workers.

- For defined-benefit plans, allow transfer of service credits.
- For defined-contribution, allow transfer of funds to individual account or new employer plan.
- Because portability of defined-benefit credits is more difficult, may suggest a move to defined-contribution.

Solution 5

(a) Pension Expense:

- Increase in service, interest and past service cost and PBO.
- Additional liability under IAS.
- Vested immediately recognized; non-vested are amortized.

Pension funding will also increase

(b)

- Changes affect different groups in different manner:
  - Older members
  - High earners (executives)
- Increase/add DB
  - COLA for medical increase.
- DC provision.
- Cash balance plan.
- Hybrid plan
  - Target
  - Floor
  - Flex benefits
- Age-weighted profit-sharing plan.

(c)

Curtailment:

	Before	**Curtailment**	**After**
Active APBO	(384,885)	230,931	(153,954)
Retiree APBO	(248,426)	--	(248,426)
Assets	0	--	0
Unfunded APBO	(633,311)	230,931	(402,380)
Unrecognized (Gain)/Loss	23,491	(8,566)*	14,925
Prepaid/(Accrued) Expense	(609,820)	222,365	(387,455)

$$*23{,}491 \times \frac{230{,}931}{(633{,}311)} = (8{,}566)$$

Expense:

Service Cost	12,423*
Interest Cost	26,381**
Expected ROA	--
Prior Service Cost Recognized	--
Amortization of Unrecognized G/CL	--
Expense	38,804

$* \; 31{,}057 \times 0.4 = 12{,}423$

$$**[402{,}380 + 12{,}423] \times 0.065 - 17{,}875 \times \frac{0.065}{2} = 26{,}381$$

(d)

- Raise employee contribution.
- Employee cost expressed as a fixed percentage.
- Increase eligibility provisions.

- Managed care
- Utilization review
- Case management
- Reasonable and customary limits
- Spousal initiatives
- Managed drug costs

Solution 6

(a) For the salaried plan, benefits will be calculated using current average pay. Employees who would've stayed with NOC would have had benefits based on a projected pay average. This will be a big source of lost benefits, especially for mid-career employees who may be losing 10-20 years of pay increases but who don't have the years remaining to make up for the loss at another company. Benefits will also be based on an age 65 benefit, so those who would've retired early lose the value of the subsidized early retirement (3%/yr. from 62 isn't fully subsidized but is fairly valuable). Many employees will not purchase an annuity with their lump sum and will lose the protection from mortality and investment that the NOC-provided annuity had.

All supplemental plan benefits will be forfeited because the plan has no assets. This will affect those limited by Belair's $3,000/year/year of service maximum benefit (those earning >$150,000).

Hourly plan participants will also lose early retirement subsidy, although they won't lose future pay increases. It is likely that NOC would increase the benefit unit in the future if the plan were not being terminated, so employees will lose this ad-hoc inflation protection. It is likely that the post-retirement indexing will not be provided at termination.

DC pension plan participants will not lose anything except future accruals. Benefits can be transferred to a PPA.

All retiree health plan benefits will be lost (there are no assets).

The salaried plan is over-funded on a termination basis. $450 million liability, $545,745,000 assets as of 1/1/2002. The hourly plan is short – $480 million liability, $334,188,000 assets as of 1/1/2002. The salaried participants may try to claim their plans' excess assets. The excess assets will probably go toward funding the hourly shortfall or to the general creditors of NOC. Either way, the hourly plan would still be under-funded.

(b) Salaried

- Liabilities for active members are certain.
- We know that termination transfers will be 380,000 × 6.25% to 12/31/02.
- Will want to immunize part of assets to ensure that we get return of 6.25% and can pay off termination liabilities.
- Immunization can be done using duration matching or even dedication.
- Fixed income securities, bonds, short-term bonds, etc., can be used to immunize return.
- Will have to sell assets at end of year to ensure the liquidity is there
- May set-aside funds in money-market instruments. Also may have trouble achieving returns.
- For inactives, need to purchase liabilities in one year.
- Liability purchase is dependent on rates being charged by insurance companies at that time.
- If you don't believe rates will change much, then may consider same strategy as actives. Lock in 6.25% rate using immunization
- May be able to get rate guarantee from insurance company, in which case will immunize portfolio as required.
- Should reduce equity and illiquid holdings
- Sell off real estate holdings as these are highly illiquid.
- Liquidity will be needed at 12/31/02

- Current salaried mix – 67% equity/26% fixed income Want to sell off equities as their returns have not been great and move into fixed income.

Hourly Plan

- Currently 49% equity, 45% fixed income, 2% real estate, 4% cash.
- As with salaried, will require large sell-off of assets at end of year for annuity purchase and transfers due to termination liability.
- Assets currently 334,188.
- Termination liabilities are 480,000.
- Plan is a large deficit position.
- Termination active liabilities are greater than assets.
- It seems like members are in jeopardy of losing benefits.
- Can ensure that no further losses are incurred, especially on the equity side, which was poor last year.
- Sell off equity holdings and move into fixed income.
- Maybe increase duration of fixed income securities to enhance return. However, this increases risk.
- Use fixed-income and money-market instruments to lock in highest return possible through immunization of the total fund.
- Locking in rate will reduce losses by members.
- We know liabilities for actives will increase by 6.25%.
- Inactives we are less sure about.
- If we can lock in high rate, then may be able to make up some ground on liabilities.
- Another way to go is stick with current asset mix for one more year, especially if you believe the market will rebound and returns on equities will be good.
- Then keep asset mix as is and deal with liquidation and surplus issues closer to the end of the year.
- Riskier strategy I would stick with locking in return and warn member of amount of losses.
- May be able to use surplus from salaried plan to pay off hourly plan deficit.
- This would need to be approved by regulators.
- Salaried plan members may have surplus entitlement rights to salaried plan assets.

(c) The defined-contribution ERP has no expense for 2002 because the plan was terminated effective 1/1/2002. There are no disclosure entries for that plan either.

$$\text{Salaried } 1/1/2002: \ ABO = PBO = 450{,}000 \ \text{(000's for all \$ amounts)}$$
$$MV = 545{,}745$$

This is a full curtailment so all gains and losses and past-service costs are recognized immediately. Unrecognized loss = 0.

Service Cost:	No benefits accrued.
Interest Cost:	$(450{,}000 - 14{,}280 \times 0.5) \times 6.25\% = 27{,}679$.
	It's appropriate to change to a 6.25% discount rate now, because that's our expected settlement rate.
Asset Return:	$(545{,}745 - 14{,}280 \times 0.5) \times 6.25\% = (33{,}663)$
	The asset return rate is changed based on our new investment strategy from part (b).
Amortization:	0
Unrecognized Loss Recognition:	30,660
Curtailment gain:	(209,011)
Total Expense:	(184,335)
Disclosure Assets:	$545{,}745 \times 1.09 - \$14{,}280 \times 1.045 = 579{,}939$

1/1/2002 Liabilities:

	Active	**Inactive**	**Total**
@6.25%	380,000	70,000	450,000
Duration	12	5	
Adjustment	$\times(1 + 12\% \times 0.5)$	$\times(1 + 5\% \times 0.5)$	50 bp adjustment
@5.75%	402,800	71,750	474,550

$$474{,}550 \times 1.0575 - \overset{\text{Expected bp}}{14{,}280} \times \left(1 + \frac{0.0575}{2}\right) = 487{,}146$$

Liability	487,145
Assets	579,939
Unrecognized Loss/(gain)	8,935
Prepaid/(Accrued)	101,728 (1/1/2002 accrued + 2002 expense)

Under IAS 19, the disclosure would show a reconciliation of liability, assets, accrued/prepaid and would detail the provisions of the plan and assumptions made, devaluing the plan and details about the curtailment.

Hourly Plan Expense and Disclosure:

Hourly 1/1/2002: $ABO = PBO = 480,000$ (000's for all $ amounts)

$MV = 334,188$

Unrecognized Loss = 0
Unrecognized Past Service Cost = 0
} Full curtailment so recognized immediately

Expense:

Service Cost:	0
Interest Cost:	$(480,000 - 12,751 \times 0.5) \times 6.25\% = 29,602$
Asset Return:	$(334,188 - 12,751 \times 0.5) \times 6.25\% = (20,488)$
	Discount rate and asset return rate set to 6.25% due to nature of liabilities and new asset allocation (usually discount rate is changed @ expense but in this situation, it is warranted).
Unrecognized loss recognized as part of curtailment:	112,363
Curtailment (gain):	(37,303)
Total 2002 Expense:	84,174

Disclosure:

Assets: $334,188 \times 1.09 - 12,751 \times \left(1 + \frac{9\%}{2}\right) = 350,940$

1/1/2002 Liability:

	Active	**Inactive**	**Total**
@6.25%	375,000	105,000	480,000
Int. rate adjustment	$\times(1 + 15\% \times 0.5)$	$\times(1 + 8\% \times 0.5)$	50 bp drop duration of 15 and 8
@5.75%	403,125	109,200	512,325

$$512,325 \times (1 + 5.75\%) - 12,751 \times \left(1 + \frac{5.75\%}{2}\right) = 528,666$$

Hourly Disclosure:

Liability	528,666
MV	350,940
Unrecognized loss	22,800
(Accrued)	(154,926)

Solution 7

(a) Reasons not to participate:

- Employees' contribution will be 4%.
- Employees may be unhappy and/or have other expectations.
- Employer contribution will go up to 4%.
- Will be administratively more complex.
- Communication could be difficult.

Reasons to participate:

- Government benefit is portable (better for mobile employees).
- Government benefit has a COLA.
- Allows total control over employer plan (for redesign or even termination).
- Level employer cost.

Other considerations:

- Employer could integrate employer plan with government plan.
- Can NOC provide better benefits at similar or lower cost?
- Different methods of integration could be used.
- Service may be measured differently (government vs. employer plan).
- Government plan limits compensation.
- Retirement dates may differ
- Get employee feedback.
- What are employer's retirement ratio/income goals?
- What are demographics of employer?

(b) Look at each plan in the Case Study.

Salaried Plan

- 5-year average pay, 2% plan
- Easily meets minimum requirement.

Hourly Plan

- Flat-dollar benefit ($75)
- Need to convert to percentage pay benefit.
- $\frac{12 \times 75}{36,700} = 2.45\%$
- Better than 0.8% of pay.
- However, projected pay could cause benefit to be lower than minimum.
- Maybe amend to keep benefit at least at Social Security minimum opt out.

Part-Time

- 0.90/hr. pay
- Need to convert to average $/pay.
- $\frac{0.90}{\underset{\text{Average pay}}{15.7}} = 5.7\%$
- Slightly lower than 6% minimum required.
- Need to amend plan to slightly increase benefit.

Recommend opt out on all three groups (financial analysis).

- Amend hourly and part-time as described above.
- May enhance other considerations (like paternalism) to consider as well (could lead to different conclusion).

Solution 8

(a)

- What cost can NOC afford?
- Will it be a percentage of earnings?
- What about volatility?
- Look at fiduciary liability; expense.
- Could have a minimum and maximum or sliding scale.
- What is the goal of NOC
- More emphasis on pension or other benefits like wages, bonuses .....
- Attract mid-career employees.
- Retain current executives.
- Project the replacement ratio to see if appropriate/comparable to current SRP.
- Winners/losers analysis.
- Balance the equity among executives by varying.
- Contribution percentage with class of executive, service, age, or earnings.
- Contribution is deductible to NOC up to 20,000 due to Belair limits.
- What will NOC do for contributions above the $20,000 limit?
- Could have top-up plan for the rest above the limit.
- Keep formula simple to understand/administer.
- Try to replicate old benefit levels?
- Try to derive percentage of earnings above floor level of $150,000? ($3000/2%)
- To replicate, project benefits for different executives under different assumptions (investment returns, earnings increase, $\left(q_x^{(a)}, q_x^{(r)}, q_x^{(d)}, \text{etc.}\right)$..
- Could also try "target benefit" approach.
- Get closer to original DB SRP.

(b) NOC

- No balance sheet liability for DC portion.
- Could tie investments to NOC stock.
- Might still need SRP to cover over $20,000.
- Passes investment risk to executive
- Contribution is deductible up to $20,000 per year.
- Now tax-deferral on rate of return.
- Contribution is now stable (and pension expense too).
- Good tool for mid-career hiring.
- Administration of two plans: Complex and costly.
- Still a $20,000 limit. Enough for adequate benefits?
- Can get pay out in variety of forms (lump sum, can be used to buy annuity).
- Has to offer DC investment choices.
- Increases communication requirements (talk about risks on employees' investment options ..).
- Simpler administration but loses "human resource" tool because more early retirement subsidies, early retirement windows, past service liability

Executive

- No more golden handcuffs?
- Fully funded: More benefit security.
- Now assumes investment and annuitization and mortality risk.
- They like having control of their money and investments.
- Bigger appreciation (although two benefits: complex to explain).
- More portable now. Old SRP didn't pay on death or termination.

(c) 2001 Pension Expense

Curtailment, but no change in PBO. Therefore, curtailment gain/loss is zero. No recognition of unrecognized amounts. Impact on 2001 expense is zero.

2002 and Ongoing Pension Expense

- SC changes from DB service cost for SRP to DC ERP costs.
- IC: No change since PBO doesn't change.
- ROA: 0.
- Amortization: No change.

(d) Settlement as of January 1, 2002:

- In respect of those who trade DB liabilities for cash payments.
- Percentage of PBO settled $= \dfrac{\$6,597,000}{\$18,784,000} = 35\%$

Therefore, amount of unrecognized losses to be recognized on settlement is
$\$1,370,000 \times 35\% = \$481,000$.

Settlement gain is determined as:

- The difference between liabilities held and the settlement cost
  $= \$6,597,000$ less $\$5,867,000 = \$730,000$.

Total settlement one-time expense impact in 2002 is
= $481,000 less $730,000
= $249,00 of <u>income.</u>

On-going impact on expense for 2002 and beyond:

- Interest cost reduced by 6.5% of $\$6,597,000 = \$429,000$.

Interest cost reduction offset by return on assets paid out (outside of pension expense).

Amortizations unaffected due to application of 10% corridor.

Solution 9

(a) Risk-adjusted return: $\alpha = (\text{actual return} - R_f) - \beta(R_m - R_f)$

Salaried Plan: $\alpha = (-1\% - 4\%) - (0.9)(3\% - 4\%) = -5\% + 0.9\% = -4.1\%$

Union Hourly Plan: $\alpha = (2\% - 4\%) - (0.9)(3\% - 4\%) = -1.1\%$

DC Plan: $\alpha = (3\% - 4\%) - (0.9)(3\% - 4\%) = -0.1\%$

(b) Features of the statement of investment policy that assist the CEO in evaluating the investment manager include:

- Overview and Investment Implications: Helps employer understand the impact of plan provisions on investment strategy (e.g., does plan offer large lump sum).
- Investment Beliefs: Employer needs to be aware of his beliefs to understand if manager is performing sufficiently.
- Investment Objectives of the Fund: Investment manager behavior must be in line with fund objectives.
- Asset Mix Policy and Ranges: Spells out the policy regarding appropriate asset mix as well as flexibility around these ranges for the investment managers.
- Investment Manager Objectives: Proves that manager meets and understands objective as seen at total fund level, manager level, asset class level, value-added targets.
- Permitted Investments: Employer needs to be sure that investment manager is investing as permitted and following constraints either imparted by sponsor or legally.

Statement ensures that expected return is reasonable considering risks involved and that all parties understand responsibility.

(c) CEO's obligations to plan:

- Operate in best interest of NOC's plans.
- Investment decision should not be based on benefits to NOC.
- Fiduciary responsibilities:
  - Duty of loyalty. Operate plan solely for the benefit of employees and beneficiaries.
  - Duty of care. Act as prudent professional.
  - Duty to diversify. Is big bank offering appropriate investment management? Should address liabilities of plan Consider *entire* portfolio.
  - Duty to delegate. Select investment manager with care. Can't delegate ultimate responsibility.
- Should monitor those delegated to minimal transaction costs to trust

CEO's obligation to NOC (shareholders):

- Manage plan in most appropriate way to control costs.
- Maintain plan to best align with company objectives and strategy.
- Operate plan to avoid fiduciary breaches.

(d) As the actuary for the plan, obligations are:

- To use actuarial assumptions that are reasonable and are your best estimate for future experience.
- To avoid and disclose to NOC any conflict of interest.
- To provide accurate valuation of plan's liabilities in accordance with generally accepted actuarial practice.
- To make recommendations for contributions.
- To prepare end-of-year disclosure information for IAS 19.
- To provide information for plan's financial statements.
- To adhere to professional code of conduct.
- To adhere to standards of practice.