Solution 1

(a) Explain the apparent discrepancy...

- Mean average investment return of 9% is an average; actual returns will differ above or bellow.
- Stochastic process involves a distribution of hundreds of potential outcomes some represent less likely, but unfavorable return scenarios
- Timing of investment returns is also relevant; for example, high returns in beginning followed by lower returns at the end of the projection period can yield the same mean return (9%) but bigger deficits.
- Assumed annual contributions are equal to annual normal cost which may not be adequate each year.
- Changes in assumptions over the projection period can also contribute to this result.

  Updating the mortality table
  Moving to retirement rates
  Lowering the interest rate
  Increasing the salary scale

- Corresponding changes in liabilities will affect the result

  If duration of liabilities is greater than duration of assets, liabilities could rise faster than assets in certain rate scenarios

(b) Stochastic assumptions for an asset liability modeling study

Stochastic forecasts are multiple, random scenarios of possible future conditions. They consist of:

- Capital market simulation
- Liability model
- Financial forecast

The inputs can be broadly categorized into:

- Asset assumptions
- Liability assumptions
- Financial assumptions

Solution 1 (Continued)

Asset Assumptions

Were expected returns by asset class reasonable?

- Based on historical returns? (don't rely too heavily on historical returns)
- Influenced by current market conditions? (bond yields, yield curves)
- Was the equity risk premium approach used?
- Was inflation taken into account?
- Are means close to capital market line?

Were assumptions for volatility of return by asset class reasonable?

- Are standard deviations close to capital market line?
- Consider liquidity of certain asset classes

Were reasonable correlations among asset class returns assumed?

- Based on historical data?
- Based on assumptions or judgment?
- Was the correlation matrix tested for consistency?
- Was serial correlation considered?

Liability Assumptions

Were the valuation assumptions for the most recent valuation used as a starting point?

- If so, was that reasonable?

What changes in valuation assumptions were assumed over the projection period (e.g. discount rate, salary scale, etc)

- Were they reasonable?

Sensitivity of liability values to changes in valuation assumptions

- Based on duration of liabilities?
- An exact valuation basis?
- Do sensitivities change if durations change?

What projection experience assumptions were used (e g. New Entrants)?

- Were they reasonable?

Solution 1 (Continued)

Financial Assumptions

What investment policy was assumed?

- Maintain current investment policy throughout projection period?
- How is rebalancing applied?
- What considerations were given to investment mix management (e.g. asset allocation & diversification)

Overall Assumptions

Were the asset and liability assumptions internally consistent?

- Based on capital market assumptions?

Was the probability matrix of various outcomes reasonable?

- How many random scenarios are being employed by the model?

Solution 2

(a)

- Fixed income: - lower risk, lower return (compared to equities)
  - may not provide adequate benefit
- GICs: - also low risk, low return
- Equities: - higher risk, higher return
  - may not provide positive return
  - consider large cap, small cap and international
- Real estate: - good for hedging against inflation
- Cash: - low risk, low return
  - adequate benefit?
- Derivatives: - for hedging
- Employer stock?

(b)

- different employees will have different risk tolerance
  younger employees may prefer riskier investments
  older employees, closer to retirement, may prefer less risky investments
- same asset classes as in (a), but let employees decide and give them education

(c)

- duty of loyalty — solely in the interest of participants
- duty of care — act with care and prudence
- duty to diversify — must balance risk and return in a manner consistent with the Plan's objectives
- duty of impartiality — do not favor one group at the expense of another group
- duty to comply with statutory constraints
- duty to delegate — should consider appointing an investment manager – can delegate authority but not responsibility
- duty to co-operate with other trustees
- duty to make the property productive — must try to generate a reasonable return on assets
- duty to act on accordance with trust agreement

Solution 2 (Continued)

Employer can reduce liability through section 404(c) safe harbor by:

- offering at least 3 investment options
- opportunity to transfer funds at least quarterly
- provide sufficient information to member

Solution 3

(a) First, need to consider ASOP 23, which addresses Data Standards. Should check data for:

- appropriateness of data for intended purposes
- reasonableness of comprehensiveness (check for internal & external consistency)
- determine any limitations of the data that require further modifications or assumptions
- consider the time, effort & cost of collecting data by a different means
- evaluate sampling method
- if data is from an external service
  - disclose that it's from another source
  - evaluate for consistency
  - disclose if data not reviewed appropriately

- Also must disclose:
  - source of data
  - materiality if any bias resulting from imperfect data
  - limitations on results because data was not reviewed
  - reliance on external source of data
  - corrections made to data
  - deviations from standard

- Data must also reflect (per ASOP 4):
  - accruals & prepayment
  - must show all participants

Specific tests:

- Census data:
  - first, I would sort data by category of employee – active, TV, Retired, Disabled (no such thing for NOC), see if the distribution by category is similar to previous years – also check to see if distribution by sex is similar

- I would run reports calculating demographic statistics, again by category. Stats to calculate:
  - average age
  - average service (if active)
  - average salary (if active)
  - average remaining service (if active)
  - average benefit (if retiree)

Solution 3 (Continued)

- I would do a data reconciliation, to check and see how people moved – for example, make sure that any active who dropped off the data became:
  - a retiree (started receiving benefits)
  - received a lump sum if vested, or
  - was a non vested term & simply dropped off the data without receiving a distribution

- If any of these reports presented inconsistent results, I would ask NOC about my concerns & questions

- Assets:
  - do a roll forward to check to see how assets did vs what was expected
    - -gain/loss analysis to identify discrepancies
    - -can also analyze by asset class
  - -evaluate assets by asset class & analyze performance
  - -check expected benefit payments against actual & explain difference
  - check expected contributions against actual & explain differences
  - confirm pension payments in financial statements consistent with pensioner data
  - confirm lump sum payments in financial statements consistent with prior year's terminated vesteds

(b) Existing Demographic Assumptions:

Mortality: based on 83 GAM table is more than 20 years old. Should update. Can evaluate current mortality pattern & choose new table that most closely resembles their current mortality trends. As shown by the large mortality gains in recent years, needs updating. Mortality assumption should consider future improvements.

Turnover: based on outdated data. Should reflect more recent turnover trends. NOC is big enough that they should be able to develop based on their own experience. Based on their termination gains in recent years, this assumption needs to be updated. Things to consider for turnover assumption:

- occupation
- employer policies
- work environment
- unionization
- presence of dangerous working conditions
- location of employment
- vesting schedule
- retirement

Solution 3 (Continued)

- early retirement benefits
- payout schedule
- availability of disability benefits

Retirement: again, based on the gains the last few years, this needs to be updated. Single point retirement age may be okay for valuing liabilities, but not acceptable for the following calculations:

- NC
- present value of accrued benefits
- projecting benefit payments
- should switch to a table based on age & service
- should reflect the following (see a big spike in rates for the following):
  - eligibility for subsidized ERF's
  - eligibility for subsidized benefits
  - eligibility for retiree medical benefits
  - eligibility for government benefits
  - some people may work past NRA

% married & age difference:

- seems appropriate

Expenses

- seems appropriate

Need a disability assumption, should reflect

- company experience
- definition of disability
- plan administration treatment of disability
- value of disability benefits
- nature of work force

Per ASOP 35 demographic assumptions

- Retirement
- Mortality
- Termination
- Incidence of Disability
- Election of Optional Forms
- Expenses
- Marriage/Divorce/Remarriage rates
- Open Group Assumptions

Solution 3 (Continued)

- Hours
- Transfers
- Missing Data Assumptions
- Assumptions should be individually appropriate and appropriate in the aggregate

Solution 4

(a) Expense Revised

(i) Service (BOY)

Previous	Window	Revised
28,927	10,000	18,927

For those moving to retirement, service cost is not recognized since all accruals have ceased. It appears that for this valuation, interest on SC in include in the interest cost.

(ii) Interest Cost

Previous calculation

$$\left(606033-\frac{11340}{2}+28927\right)+0.06=37,757$$

Revised calculation

PBO = $606033+(225000-140000)=691033$

- for all purposes ABO = PBO due to the flat $ plan where there is no recognition of future pay increase

Expected Benefit Payments = $11340+(17000-0)=28,340$

SC = $28927+(0-10000)=18927$

$$IC=\left(691033-\frac{28340}{2}+18927\right)\times 0.06=695,790\times 0.06=41,747$$

(iii) EROA

Previous

(34,229)

Revised

$$(34,229)+\frac{(17000-0)}{2}\times 0.075=(33,592)$$

Solution 4 (Continued)

(iv) Amortizations

	Baseline	Effect of curtailment	After curtailment	Window Effect	After Enhancement
ABO=PBO	(606,033)	(10,000)	(616,033)	(75,000)	(691,033)
Assets	444,857	0	444,857	0	444,857
Funded	(161,176)	(10,000)	(171,176)	(75,000)	(246,176)
PSC	27,240	(2,846)	24,394	0	24,394
G/L	90,154	0	90,154	0	90,154
Accrued/Prepaid	(43,782)	(12,846)	(56,628)	(75,000)	(131,628)

NOTES:

$$\frac{7000}{67000} \times 27240 = 2,846$$

Since there is a loss and a curtailment loss, then recognize curtailment/enhancement loss immediately.

PSC

Previous = 3837

$$3837 - \left(3837 \times \frac{7000}{67000}\right) = \overset{3837}{\underset{3436}{-401}} \leftarrow \text{Revised}$$

G/L

Previous = 2762

Revised = $(90154 - 69103)/10.35 - 2034$ due to reduction in AFWL and increase in PBO corridor

(v) FAS 88 cost – recognition of the curtailment & enhancement = 87,846

Solution 4 (Continued)

Summary

	Baseline	Revised Pension Expense
SC	28,927	18,927
IL	37,757	41,747
EROA	(34,229)	(33,592)
Amort PSL	3,837	3,436
Amort (G)/L	2,762	2,034
NPPC	39,054	32,552
FAS 88	0	87,846
	39,054	120,398

Solution 5

Employees:

- Advantages:
  - Increase of funded status at the bond issuance (big deficit of $88,534,000)
  - More security
  - Possibility to have right on surplus
- Disadvantages:
  - Low diversification in investment ⇒ if NOC not doing well, NOC rating decrease, Bond rate increase, bond price decrease
  - Lose job with decrease in surplus in the pension plan
  - Employer miss liquidity to pay lump sum because have to pay interest on bond
  - Employer miss liquidity to pay pensions to 1,034 pensioners
  - Future service = 10 7 years ⇒ old active members ⇒ enough money in 10 years to pay pension because NOC will have to reimburse the bond

4% may be high, liquidity issue
Too big commitment ⇒ should offer 2% and see if can earn enough money
Have to take into account of duration ⇒ note: future service = 10.7 years

Employer (management):

- Advantages:
  - No big contributions to make to pay deficit
  - Impact on pension expense ⇒ increase MV ⇒ increase surplus, increase prepaid ⇒ decrease in book liability
  - Pension expense decrease: expected return increase ⇒ expense decrease ⇒ increase benefits (profits)
- Disadvantages:
  - Owners may challenge management on fiduciary responsibility
  - Bad image on market
  - Financial analyst will look at ratings
  - Against trust responsibilities: care, regarding co-trustee, impartiality, diversification, act in accordance with trust agreement
  - If NOC performs badly, NOC should increase its contributions to the plan because MV of bonds decrease ⇒ liquidity issues
  - If funded status improves, union may demand benefit increases
  - Transaction and administration costs increase

Owners/stockholders:

- Only change if transfer of value between plan beneficiaries and stockholders
- Risk management of pension plan does not change for stockholders because can rebalance the portfolio as they wish

Solution 5 (Continued)

- Advantages:
  - Short term:
    - Increase profit because pension expense decrease, because higher expected return, because higher asset value
    - Book value of liability ⇒ increase stockholders' value
  - Tax-free accumulation in pension fund
  - Gain if fund earns more than after-tax cost of 2.4% (40% tax rate)
  - Less contributions to finance UAL ⇒ money used for other projects with better return
  - Employees are happy ⇒ increase productivity ⇒ increase revenue
  - Increase stock price

- Disadvantages
  - Long term risk ⇒ increase expense, decrease profits
  - Lack of liquidity ⇒ reimburse interest and book value of bonds ⇒ take money that could be better invested (greater return)
  - 7.5% expected return includes a risk premium for equities

Government:

- Advantages:
  - Immediate increase in surplus ⇒ richer employees ⇒ less reliable on government revenue because it is deductible
  -Decrease in employer contributions to finance UAL ⇒ increase in government revenue because it is deductible

- Disadvantages:
  - Interest on bonds are tax deductible ⇒ less cash inflow at government
  - Future risk ⇒ employees will rely on government ⇒ poverty
  - If big future surplus ⇒ less cash inflow at government

PBGC

- Advantages:
  - Like because increase surplus ⇒ lower chance to pay deficit

- Disadvantages:
  - Less contribution for PBGC
  - Future risk for PBGC

Solution 5 (Continued)

Tax payers:

- Don't like because less money at government (no contribution to finance UAL)
- They want companies to pay taxes

Should try to match duration of asset and liability
Should take into account with the bonds.
Similar to Pension Obligation Bonds used in public sector

Solution 6

General questions when establishing a socialized/private plan:

1. Should the system be public (socialized) or private
2. If private, should be mandatory or voluntary
   If voluntary establish minimum standards for:
   - Funding requirements
   - Eligibility
   - Normal retirement dates
   - Vesting
   - Ancillary benefits (Death, Termination, Disability)
   - Possible mandatory pre-retirement indexing
3. If private & voluntary, should the plan be encouraged or simply permitted?
4. Who is best able to bear the risks?
5. Should the government have (sponsor) or guarantee fund like the PBGF, PBGC?
6. Who should pay (employer only, employee only, or employer and employee)?
7. Should the plans be funded or unfunded?
8. To what extent should the financing/funding of the plans be regulated?
   Definition of "funded"
   - going – concern basis
   - termination/wind-up basis
   - traditional vs. F.E. (financial economics) approach
9. What type of companies should be allowed to sponsor plans?
   - minimum number employees
   - profitability requirements/credit rating requirements plans?
10. What type of companies should be allow to manage fund investments?
    - employers and employees are both subject to wrong-doing risk if assets are mishandled
    - government could be left making up the shortfall, even if there is no guarantee fund.
11. Should individual pension plans be permitted?
    - plans not attached to specific company

Advantages of mandatory social security retirement program.

1. Universal coverage (everyone covered) (good for employee + government)
2. Low administrative fees due to economies of scale (good for all parties)
3. Social utility (good for everyone)
4. Wealth redistribution (good for low income employee and gov't)
5. Benefits are portable (good for employee and government)
6. Employees don't have to worry about administration.
7. For employees: benefits are very secure since government has ability to raise funds through taxation, and benefit cutbacks are unlikely because politicians would want to avoid these unpopular decisions.
8. For employee: government programs often provide COLA's, private plans often don't, or provide only partial

Solution 6 (Continued)

9 For employee: government benefits usually offer richer ancillary benefits, are final average earnings based, and calculate FAE on shorter averaging period
- future demographic challenges; more resources required as population ages
- government can ensure a minimum standard of living for retirees and ensure contribution of retired to national economy

10. For government: has control over benefit levels and so can set with regard to social utility, can control wealth redistribution

Advantages of private plan (government incentives to employers)

1. employers receive tax benefits, which may be pushed along to employees in the form of salary increases
2. employers have flexibility in plan design, may design more generous plan than social security
   - potentially benefits everyone
3. High income employees benefit because
   - progressive tax system favors then with respect to tax deductible benefits
   - private plans are designed to provide adequate replacement rate, whereas government concerned with ensuring everyone is above poverty line.
     2 standards of adequacy – minimum standard of need
     – amount needed to maintain pre-retirement lifestyle

4. employers re receive tax advantages; contributions are tax deductible and investment earning accrue tax-free5. orderly retirement of loder employees; good for employer
6. profit sharing improves employee interest in sponsor's financial performance
   -

7 Private plans are funded
- generates large capital stock
- greater incentive for private investment
- potentially benefits everyone as leads to a stronger economy in general
  - more profit (employer)
  - more tax (government)
  - more jobs higher wages (employee)

8. Employees can use plans to meet various objectives: HR planning, Financial goals
9. Government doesn't have to worry about administration, or potential political fallout that would result from cuts to social security program - pass responsibility to employer
10. Reduced reliance on government

Solution 6 (Continued)

Disadvantages of private plan from employee and government perspectives

1. Since coverage not universal, low income employee who was not covered could be severely affected
2. Poverty may increase
3. Risks for employee:
    - job tenure and wage risk
    - implicit contract risk
    - longevity risk
    - financial market risk
    - interest rate risk
    - inflation risk
    - risk due to financial performance of plan sponsor

Disadvantages of socialized plan

1. For government: may still end up paying bill if funds mismanaged or have capital market collapse
2. Are unfunded – employee: less secure
   – government order: reduced capital stock
3. May not be adequate for higher earners
4. Subject to demographic risk plus intergenerational inequity

General plan design considerations:

1. Adequacy
2. Equity
3. Shifting demographics
4. Tax effectiveness
5. Cost and cost sharing
6. Coordination with government benefit
7. General compensation philosophy
8. Variations in design for different plus groups
9. Location
10. Legislation
11. Overall objectives
12. Wealth redistribution

Conclusions: A combination would probably be best
If had to choose only one:
Government would prefer socialized program, as it allows them to carry out their own agenda, mostly wealth redistribution. Also they avoid lost tax revenue. Downside is they are unfunded and not adequate for high earners.
Employer prefers option of government incentives:
Still optional so if decide to they don't need to sponsor a plan (more choice). Also can customize plan to attract employees and use for HR strategies.

Solution 6 (Continued)

Employee: low-income prefer government plan:

- Universal coverage
- Wealth redistribution
- Portability

high-income: prefers employer sponsored

- Tax system favors these employees
- Plan design often favors these employees
- They are the group in a government plan that redistributes wealth
- Government plan would not be adequate for them to maintain pre-retirement lifestyle

Solution 7

(a)

- NOC may need additional workers
- demographics are such that there are many people who will be retirement eligible in the coming years
  - not enough new workers to replace them
- phased retirement will give NOC a mechanism to influence retirements i e increase retention
- will be able to balance the costs of keeping older workers with increased costs vs. training and hiring new employees in a competitive market (due to short labor supply)
- in addition, may recognize cost savings from:
  - planned orderly retirement
  - avoiding demographic shocks
  - be able to train the new staff recruited to fill the gaps
- an additional cost is the fact that older employee's salaries are typically higher than their younger counterparts
- older employee higher salary may be offset by higher productivity
- older employee's continuing to accrue benefits (full benefits for non-pension) is more expensive than younger ones.
  - b/c older ones closer to payout
- as SVC accrues, employer portion of retiree medical costs increase (see plan summary) from 0% at < 4 years
  to 100% with 20+
- continued coverage in active medical etc. . .has cost as well
- the working of 50% of full-time rates lines up nicely with accruing 50% of a year of service
  - equitable
  - contrasts with full eligibility and cost sharing with other befits i.e. medical
- in many jurisdictions, not allowed to accrue benefits and be in receipt of payment at the same time
- tough to explain, communicate & administer
- allows the employee to lock in subsidized ERF?
  - appears as though it does
  - may be too generous
  - high financial cost of doing so
- very generous financially to ee
  - balanced by health, family factors
  - will get gradual reduction in work
  - may keep people who otherwise would have retired
  - employee has continued working expenses (i e commute, clothing)
  - -will need to be at close to pre-retirement earnings (replacement ratio)

Solution 7 (Continued)

- paying salary & accruing benefit very costly to NOC
  - administratively very tedious as well i.e. does benefit increase annually/monthly?
- overall, expensive to NOC but may be necessary to convince employee's to work longer
- competitive practice? meets business objectives? can afford? may be able to defer some costs?

(b) DROP – deferred retirement option

- the same business considerations as part (a)
- however a DROP plan would probably cost less than the union's proposal
- idea of a DROP:
  - on the "DROP" election date the value of the accrued benefit would be frozen
  - the payments form the plan would commence into a DROP account
  - the employee would continue to work and earn a salary
  - the pension plan benefits would cease to accrue
  - the account for the "drop" would earn interest
  - at a date of retirement, the employee would receive the LS (Lump Sum) value of the DROP account plus the continued stream of pension payments
- Items to be negotiated with the DROP
  - ensuring the ERF is locked in at DROP date
  - where would the DROP account be invested?
    - plan assets?
  - who administers – tough to keep individual accounts
  - is the rate of return guaranteed
  - is there a fixed date of retirement if an employee takes DROP? i.e. must work to age 65
- Problems a DROP would solve
  - still costs more
  - if an employee could afford to retire a DROP may not convince them
  - other benefit plans would still accrue a portion /full service depends on agreement
- New issues with a DROP:
  - employees that planned to continue working may now take the subsidized phased retirement program
  - if government plan, how to integrate
- Tough to then force employees to retire by specified date
  - may be laws preventing mandatory retirement
- Makes it financially beneficial for an employee to retire late
  - aligned with business goals
- Use stochastic modeling to project impact

Solution 7 (Continued)

(c) Depends on treatment for accounting purpose:

1. Service cost will change if employee's accruing ½ benefit (DROP typically doesn't have accrued benefit)
2. Change to retirement/turnover assumptions are necessary
3. Expected Benefit Payments will increase if DROP accounts held separately from pension fund
4. Because service accrues after partial retirement will need to have both active and retiree portions for members who elect DROP
5. Will need to reflect the impact of any guaranteed interest rates
6. Subsidized ERFs will be locked in so ABO will increase
7. Assets may increase if DROP held in fund

Solution 8

All numbers and developments are in thousands.

(a) The 2005 Pension Expense

Settlement Determination:
Purchasing a non-participating annuity contract for all inactive participants triggers a settlement. The settlement took place before the plan amendment that also took place as of 1/1/2005. The settlement accounting and impact of the amendment is shown as follows:

	Before Settlement	True up for Settlement	Effect of Settlement	After Settlement	Effect of Amendment	After Amendment
Active	500,433	500,433	-	500,433	33,362	533,795
Inactive	105,600	95,000	(95,000)	-	-	-
ABO=PBO	606,033	595,433	(95,000)	500,433	33,362	533,795
Asset	444,857	444,857	(95,000)	349,857	0	349,857
Funded	(161,176)	(150,576)	-	(150,576)	(33,362)	(183,938)
PSC	27,240	27,240	-	27,240	33,362	60,602
TO	-	-	-	-	0	-
G/L	90,154	79,554	(12,693)	66,861	-	66,861
PPC	(43,782)	(43,782)	(12,693)	(56,475)	-	(56,475)

Settlement Ratio = 95,000 / 595,433 = 15 9548%

The G/L recognized for settlement is calculated as 79,554*15.9548% = $12,693.

The amendment applies to all service, which increases both NC and PBO by the factor 80/75.

Choosing Reasonable Assumptions: The settlement reduced the expected benefit payment for retirees to 0. The amendment would increase the expected benefit for actives. The settlement and the amendment should also have impact on the expected contributions for the year. Since we know the actual benefit payments and contribution (provided), this would be our expectation. So we assume the expected benefit = 225 and expected contribution = 100,000. The settlement and the amendment should not affect the average future service for actives. (Note: *From the information given, it is also the sponsor's accounting practice to include the interest on NC in the interest cost, not in service cost.*)

(Note: *Full credit was also given for this part if other clearly stated and supported reasonable assumptions were used.*)

Solution 8 (continued)

Service Cost = 28927*80/75 = $30,855
Interest Cost = (533795+30855)*6% – 225*3% = $33,872
Expected Return = 349857*7.5% + 100000*7.5%/2 – 225*7.5%/2 = $29,981
Amortization of PSC = 3837 + 33362/10.7 (amortization of the new PSC base) = $6,955.
Amortization of G/L = (66861 – max(533795,349857)*10%)/10.7 = $1,260
Net Periodic Benefit Cost = SC + IC - Return + amortizations of PSC and G/L = $42,962
Expense for Settlement = $12,693
Total Pension Expense = $55,655

(b) The 12/31/2005 Disclosure

A. Change in Benefit Obligation	**12/31/2005**
Benefit obligation at beginning of period	606,033
Service cost	30,855
Interest cost	33,872
Actuarial (gains)/losses	(132,398)
Benefits paid	(225)
Plan Amendments	33,362
Settlement	(95,000)
Benefit obligation at end of period	476,500

B. Change in Plan Assets	**12/31/2005**
Fair value of plan assets at beginning of period	444,857
Actual return on plan assets	(154,632)
Employer contribution	100,000
Benefits paid	(225)
Settlement	(95,000)
Fair value of plan assets at end of period	295,000

C. Reconciliation of Funded Status	**12/31/2005**
Funded status (B.11 - A.12)	(181,500)
Unrecognized net actuarial (gains)/losses	128,416
Unrecognized prior service cost	53,647
Net amount recognized	563

Solution 8 (continued)

D. Amounts Recognized in the Financial Statement	12/31/2005
Prepaid benefit cost	0
Accrued benefit liability	(181,500)
Intangible assets	53,647
+Accumulated other comprehensive income	128,416
Net amount recognized	563

Solution 9

Funding Issues

Given that this plan is no longer fully funded, future negotiations with participating employers will need to address this issue – by negotiating higher cents per hour contributions in the future. However, it may be difficult to ge thte employer to change the contribution rate. Also, a higher contribution rate might force the member into accepting cuts in other benefits – to pay for this benefit. If the member benefits are not cut, the increased contributions could create cash flow problems for employers. In computing the shortfall, we need to consider the fact that future negotiations may be several years away and the deficit will continue to grow. Also, while current employers pay for their active employees, the necessary contributions will also need to cover the shortfall for inactives, as well.

As the actuary, it is important to maintain a safety margin between the expected funding requirements and the actual employer contributions. Therefore, I would consider changing the mortality table to predict potential future mortality improvements, so that this would build in additional conservatism and minimize the volatility on employer contributions.

To minimize volatility, we should have a policy for long-term treatment of gains and losses. We could also smooth assets.

Finally, it would make sense to review the investment policy since we have had an increase in the duration of the liabilities.

Design

Due to the fact that members are living longer, the plan could be redesigned to reduce costs. Some of the ways this can be done are:

1. Increase the active members contribution percentage
2. Increase the amount that a retiree pays to the plan
3. Increase deductibles and copays
4. Consider more managed care, PPOs, HMOs and other provider networks
5. Perform utilization reviews
6. Do large case management
7. More management of the prescription drug process
8. Increase the early retirement age
9. Limit spouse coverage/encourage spouses to get coverage elsewhere
10. Increase eligibility requirements
11. Convert plan to a DC welfare account that gives retirees money towards medical benefits. May need to grandfather groups during transition.
12. Add caps/limits on benefits
13. Reduce benefits which have the most unpredictable costs

Solution 9 (Continued)

Participation

As the plan gets more expensive, employers will decide whether they want to continue to participate They might withdraw because:

1. Their group is healthier, so they anti-select against the plan
2. The costs are higher than they can afford – or higher than average
3. They find a cheaper multi-employer plan elsewhere
4. They mainly have actives and they don't want to pay for others inactives

There will be uncertainty of remaining employers upon withdrawal of others If many employers with actives leave then the costs per active will increase for those remaining. We might reduce withdrawals (anti-selection) if contributions are developed based upon actual employer experience.