

# RET DAU Model Solutions

## Spring 2015

### 1. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.

### Learning Outcomes:

Describe the structure of the following plans:

- (a) Traditional defined benefit plans
- (b) Defined contribution and savings plans
- (c) Hybrid Plans
- (d) Retiree Health plans

Given a plan type, explain the relevance, risks and range of plan features including the following:

- (a) Plan eligibility requirements
- (b) Benefit eligibility requirements, accrual, vesting
- (c) Benefit/contribution formula, including the methods of integration with government-provided benefits
- (d) Payment options and associated adjustments to the amount of benefit
- (e) Ancillary benefits
- (f) Benefit subsidies and their value, vest or non-vested
- (g) Participant investment options
- (h) Required and optional employee contributions
- (i) Phased retirement and DROP plans

### Sources:

Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches - Allen - Ch 8

Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches - Allen - Ch 12

DA-106-13 The Use of Health Savings Accounts for Health Care in Retirement

### Commentary on Question:

*Successful candidates did not need to supply all details as listed in this solution.*

# 1. Continued

## **Solution:**

Compare and contrast the following types of plans:

- 401(k) plan;
- Roth Individual Retirement Account (IRA); and
- Health Spending Account (HSA).

The following are features of 401(k) plans.

- May allow employee catch-up contributions for employees at least age 50
- Allows employees to defer current earnings by investing in employer sponsored plan
- Employer contributions may be matching contributions or non-elective contributions to all participants
- Contributions in plan accumulate tax deferred
- Subject to federal regulations/tests (ADP/ACP, limits on contributions)
- May include Roth feature which allows after-tax contributions to be invested and then accumulate tax-free
- All employee contributions fully vested & employer contributions subject to ERISA vesting rules
- Employee contributions may be made on pre-tax basis
- Tax penalties apply to premature distributions (before age 59 1/2)
- Have the highest annual contribution limit of these three so greatest potential for accumulated savings
- Participants can generally direct how their contributions are invested in 401(k) and often how employer 401(k) contributions invested
- Participants often permitted to take loans from 401(k) plans
- Limited withdrawals before separation from service (for hardship) allowed from 401(k) plans
- If still working beyond age 70 1/2, can continue contributing to 401(k) plan and not have to take minimum required distribution (as in IRA)
- Distributions from 401(k) can be rolled into IRA or paid as lump sum to participant (subject to tax withholding)

The following are features of Roth IRA

- Individual must have "earned income" to establish Individual Retirement Account (IRA)
- Only after-tax money goes into Roth IRA
- Can accept rollovers from other qualified plans or IRAs (but must pay taxes if moving pre-tax 401(k) or traditional IRA money into the after-tax Roth IRA)
- Subject to limits on total amount of non-rollover contributions during a year
- May allow catch-up contributions for individuals at least age 50
- Contributions in plan accumulate tax free
- Eligible to make contribution beyond age 70 ½
- Have the middle annual contribution limit of these three types of plans

## 1. Continued

- Tax penalties apply to premature distributions (before age 59 1/2)
- Participants can generally direct how their contributions are invested in IRA
- Loans are not allowed out of IRAs (and rollovers must be completed within 60 days so can't "borrow" money for longer period)
- distributions from IRA may be in form of lump sum or annuity stream

The following are features of Health Savings Accounts (HSA)

- HSA funds can be used to cover eligible health care expenses prior to retirement
- HSA funds can be used for qualified medical expenses during retirement and not subject to minimum distribution rules
- Contributions are tax-deductible
- Earnings on contributions are not subject to taxation
- Distributions used for qualified medical expenses not counted as taxable income
- May allow catch-up contributions for individuals at least age 55 not enrolled in Medicare
- Individual must be enrolled in high deductible health plan to qualify to have HSA
- Contributions subject to annual limits
- Employer may also make contributions on behalf of employee
- Funds in HSA are completely portable and roll over from year to year
- Have the lowest annual contribution limit of these three so least potential for accumulated savings
- Participants can generally direct how their contributions are invested
- Post 70 1/2 contributions can still be made by working employees (as long as they're not enrolled in Medicare)
- Cannot use HSA funds to pay retiree health insurance premiums prior to age 65

## 2. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.
4. The candidate will be able to evaluate plan design risks faced by sponsors of retirement plans and retiree health plans.

### Learning Outcomes:

Describe the structure of the following plans:

- (a) Traditional defined benefit plans
- (b) Defined contribution and savings plans
- (c) Hybrid Plans
- (d) Retiree Health plans

Given a plan type, explain the relevance, risks and range of plan features including the following:

- (a) Plan eligibility requirements
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- (e) Ancillary benefits
- (f) Benefit subsidies and their value, vest or non-vested
- (g) Participant investment options
- (h) Required and optional employee contributions
- (i) Phased retirement and DROP plans

- (3a) Identify risks face by retirees and the elderly.
- (3b) Describe and contrast the risks face by participants of:
  - (i) Government sponsored retirement plans
  - (ii) Single employer sponsored retirement plans
  - (iii) Multiemployer retirement plans, and
  - (iv) Social insurance plans
- (4a) Identify how plan features, temporary or permanent, can adversely affect the plans sponsor.
- (4d) Analyze the issues related to plan provisions that cannot be removed.

### Sources:

Hybrid Pensions: Risk Sharing Arrangements for Pension Plan Sponsors and Participants

## 2. Continued

### Commentary on Question:

*Successful candidates compared and contrasted the options rather than providing a list.*

### Solution:

(a) Compare and contrast both plan design options from the perspective of the plan sponsor to traditional:

- final average defined benefit plan designs; and
- defined contribution plan designs.

Option 1 compared to final average defined benefit plan:

- Option 1 poses less funding volatility for employers as investment risk and longevity risk are both transferred to members in the form of employee contribution increases
- However, there are HR risk under Option 1 as member contribution increases during times of poor investment return and when life expectancies increase (i.e. intergenerational inequity)

Option 1 compared to defined contribution plan:

- risks are pooled and plan sponsor retain investment decisions under Option 1
- Under Option 1, less education is required on how much employees should save and how to invest

Option 2 compared to final average defined benefit plan:

- Option 2 poses less funding volatility for employers as wage increase risk is less
- It is easy for the plan sponsor to improve benefit when investment is good as decision is reviewed annually, which is appreciated by employees

Option 2 compared to defined contribution plan:

- risks are pooled and plan sponsor retain investment decisions under Option 2
- Under Option 1, less education is required on how much employees should save and how to invest

(b) Compare and contrast the features and associated risks of both of the plan design options from the perspective of the plan participants.

Contributions:

Option 1: members bear the financial market risk associated with the plan in the sense that contribution rates might increase

Option 2: fixed/no contribution rate

## 2. Continued

Inflation protection:

Option 1/2: no indexing provisions, members bear inflation risk post retirement

Option 1: pre-retirement inflation is protected to the extent that the final average benefit formula is used to determine pension at retirement

Option 2: pre-retirement indexing is contingent on funded status, reducing pre-retirement inflation risk for members, however need for inflation protection more relevant in a career average plan vs final average or flat dollar plans

Option 2: members bear investment risk since pre-retirement inflation protection is subject to investment performance

Defined benefit provision:

Both options are defined benefit - longevity risk minimized

No purchase of annuity (effect of interest rate fluctuation on annuity pricing is irrelevant for members)

### **3. Learning Objectives:**

3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.
7. The candidate will be able to analyze/synthesize the factors that go into selection of actuarial assumptions.

### **Learning Outcomes:**

- (3a) Identify risks face by retirees and the elderly.
- (7a) Evaluate appropriateness of current assumptions.
- (7b) Describe and explain the different perspectives on the selection of assumptions.
- (7c) Describe and apply the techniques used in the development of economic assumptions.
- (7d) Recommend appropriate assumptions for a particular type of valuation and defend the selection.

### **Sources:**

Risk Management and Public Retirement Systems – Appendices only

2009 Selection of Actuarial Assumptions, Consultant Resource Manual, SOA Version, Mercer, pp. 5-63

### **Commentary on Question:**

*Commentary listed underneath question component.*

### **Solution:**

- (a) Describe the issues associated with using the assumed rate of return on plan assets as the discount rate to measure public sector defined benefit plan liabilities from the perspectives of:
  - (i) taxpayers;
  - (ii) public employee unions; and
  - (iii) the government.

### **Commentary on Question:**

*Successful candidates also mentioned the pros of a high discount rate.*

### 3. Continued

In general using the rate of return as the discount rate results in a higher discount rate than other methods. This results in lower liabilities and lower required contributions to the plan.

Taxpayers:

- A higher discount rate results in lower liabilities, which results in lower contributions, which results in less taxes for current taxpayers.
- Higher funded ratios as a result of lower liabilities due to a higher discount rate could result in taxpayers agreeing to an increase in benefits
- Generational equity – future taxpayers may have to pay more in taxes to make up for funding shortfalls by current taxpayers as a result of lower contributions because of a higher discount rate
- Taxpayers may not understand the risks of using the rate of return as the discount rate

Public Employee Unions

- Most unions represent current actives, and not retirees. Thus, the current actives may be making fewer contributions due to a higher discount rate to pay for current retiree benefits, but future actives may then need to pay more for the current actives once they retire
- Lower contributions due to a higher discount rate are popular for current union members
- Unions will likely push for benefit increases if funded ratio is high enough as a result of using a higher discount rate

Government

- Government is pressured to decrease current contributions (keep taxes down). This is easier to accomplish by using a high discount rate
- Government is pressured to increase benefits when the plan is well funded as a result of a high discount rate
- Asset mix may be invested in more risky investments in order to achieve a higher rate of return and thereby a higher discount rate
- Fiscal gaming – benefit increases or decreases may be made without the risks known in the interest of short-term re-election without considering long-term implications on the plan

- (b) Describe three methodologies for setting accounting discount rates for private sector defined benefit plans.

**Commentary on Question:**

*Successful candidates described the methodologies.*



### 3. Continued

#### Cash Flow Matching

- Discount rate is based on plan's projected cash flows
- Discount rate is the single rate that results in the same present value as discounting each projected cash flow at the spot rate for its duration on the yield curve
- Alternatively under a bond model cash flow matching approach, a limited number of long-term bonds are selected on an optimized basis that match the cash flows of the plan instead of using a broad-based yield curve

#### Index rates for hypothetical cash flows

- Discount rate is based on a broad based yield curve or index
- Discount rate is selected based on the rate for an index of similar duration to the plan's cash flow
- Discount rate is adjusted up or down to the extent the plan's duration differs from the index

#### Long term bond index

- Discount rate is based on a long term bond index
- Rate is typically round to the nearest 5, 10, or 25 basis point multiple
- Method is antiquated. Most plan sponsors now use a cash flow matching method

#### 4. Learning Objectives:

3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.

#### Learning Outcomes:

- (3c) Evaluate benefit adequacy and measure replacement income for members of a particular plan given other sources of retirement income.

#### Sources:

Replacement Ratio Study Aon A Measuring Tool for Retirement Planning

#### Commentary on Question:

*Successful candidates demonstrated understanding of the tax impact. Note that credit was given for using a discounting period of either 19 or 20 years.*

#### Solution:

- (a) List four reasons an individual may need less gross income after retirement.

- Income taxes go down after retirement (can also give credit here for mentioning that social security benefits are only partially taxed)
- Social security taxes end at retirement
- Saving for retirement is no longer needed
- Work-related expenditures go away at retirement

- (b) Calculate the replacement ratio required to maintain the individual's pre-retirement standard of living.

Formula = Required replacement ratio = Required Gross Post-tax Retirement Income divided by Gross Pre-retirement Income

Pre-retirement gross income =  $75,000 * 1.03^{20} = 135,458$

Pre-retirement taxes =  $135,458 * 30\% = 40,637$

Expenditure change = 9,000

No savings, so this doesn't go away

Required post-retirement spendable income =  $135,458 - 40,637 - 9000 = 85,821$

Required post-retirement gross income =  $85,821/0.85 = 100,966$

Replacement ratio =  $100,966 / 135,458 = 75\%$

#### 4. Continued

- (c) Calculate the savings level, as a percent of pay, required to achieve a target replacement ratio of 70%.

Show all work.

Social Security is providing 40%. Therefore, need savings to provide 30% pay replacement.

Need a savings account balance equal to \$473,425 at retirement, which is derived from Age 65 salary \* 30% \* age 65 annuity factor (135,458 \* 30% \* 11.65)

Accumulated value of contributions must equal \$473,425 as shown below:

(X is the percent of pay necessary to meet replacement ration):

$$473,425 = (75,000 * x * 1.065^{20} + 75,000 * 1.03 * x * 1.065^{19} + 75,000 * 1.03^2 * x * 1.065^{18} + \dots + 75,000 * 1.03^{19} * x * 1.065)$$

The formula reduces algebraically to :

$$x = 473,425 / 75,000 / 1.065^{20} / \text{PV of } \$1 \text{ annuity at } 3.4\% \text{ interest}$$

$$3.4\% = [(1.03/1.065)^{-1}] - 1$$

$$x \sim 12\%$$

Note: It was possible to assume end of year salaries and savings deposits which would make the answer to 12.5%.

## 5. Learning Objectives:

3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### Learning Outcomes:

- (3a) Identify risks face by retirees and the elderly.
- (8a) Perform valuations for special purposes, including:
  - (i) Plant termination/windup
  - (ii) Accounting valuations
  - (iii) Open group valuations
  - (iv) Plan mergers, acquisitions and spinoffs

### Sources:

DA-116-13: Pension Issues in Corporate Sales, Mergers and Acquisitions

DA-148-13: Mergers and Acquisitions: Due Diligence of Retirement Plans

DA-145-13: Acquiring a U.S. Operation—A Primer

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the issues associated with the treatment of benefits accrued up to the closing date for each potential acquisition from the perspectives of:
  - (i) Acquired employees; and
  - (ii) ABC Company.

### Commentary on Question:

*Successful candidates demonstrated their understanding of the accrued benefit issue in an acquisition from different points of view.*

### Factory A

Acquired Employees:

- Definition of accrued benefit – will it reflect expected future salary increases?
- Accrued benefit security – if future salary increases are reflected, then maintain some level of pre-retirement inflation protection
- Concern over future of their accrued benefits – ie. will plan wind up, be frozen, etc.

## 5. Continued

- Disposition of surplus – if a surplus exists, are they entitled to any of it?
- Treatment of unvested accrued benefits

ABC Company:

- Definition of accrued benefit – will it reflect expected future salary increases?
- Disposition of surplus – vendor may argue that accrued benefit should not include future salary increases and attempt to receive a refund of surplus from the plan
- If salary increases included in accrued benefit, purchaser may subsequently wind up the plan and reap a salary projection “windfall”
- Asset transfer – vendor may argue that accrued benefit should not include future salary increases and transfers a reduced amount of pension assets to the purchaser’s pension fund
- Purchase price – vendor may argue that accrued benefit should not include future salary increases and attempt to negotiate higher purchase price to reflect sudden change in interpretation of “accrued benefits” and sudden “decrease” in liabilities

### **Factory B**

Acquired Employees:

- Definition of accrued benefit – will it reflect expected future benefit increases?
- Accrued benefit security – current benefit unaffected, but future flat benefit rate upgrades are uncertain (want to maintain some level of pre-retirement inflation protection)
- Concerns over future of their accrued benefits – ie. will plan wind up, be frozen, etc.
- Disposition of surplus – if a surplus exists, are they entitled to any of it?
- Treatment of unvested accrued benefits

ABC Company:

- Definition of accrued benefit – will it reflect expected future benefit increases?
- Purchase price – if substantial history of upgrades exists, or a substantial expectation on the part of the employees exists that there will be adjustments in the future, purchaser will want this to be reflected
- Disposition of surplus – vendor may argue that accrued benefit should not include future benefit increases as there is no legal obligation on the corporation or on the pension plan to provide upgrades in the future and attempt to receive a refund of surplus from the plan
- If benefit increases included in accrued benefit, purchaser may subsequently wind up the plan and reap a benefit projection “windfall”

## 5. Continued

- Asset transfer – vendor may argue that accrued benefit should not include future salary increases and transfers a reduced amount of pension assets to the purchaser's pension fund

### **Factory C**

Acquired Employees:

- No accrued benefit issue – accrued benefit is simply equal to account balance
- Concerns over future of their accrued benefits – ie. will plan wind up, change in contribution formula, change in investment options, etc.

ABC Company:

- No accrued benefit issue – accrued benefit is simply equal to account balance
- Disposition of future forfeitures of unvested account balances is a matter of negotiation

- (b) Describe the pension information required to perform due diligence for the acquisition of Factory A.

Plan documentation, including:

- Retirement plan documents
- Summary of plan descriptions (SPDs)
- Owner data
- Union arrangements
- Undocumented promises
- Summary of material modifications (SMMs)

Detailed compliance tests, including:

- Nondiscrimination testing results
- Top-heavy testing results

Administrative reports, including:

- Financial statements
- Actuarial reports
- Administrative procedures
- Trust statements
- Census data
- Employee reports
- Employee communications

Miscellaneous reports, including:

- Reportable events
- History of litigation
- Service contracts

## **6. Learning Objectives:**

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
6. The candidate will be able to analyze, synthesize and evaluate plans designed for executives or the highly paid.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### **Learning Outcomes:**

Given a plan type, explain the relevance, risks and range of plan features including the following:

- (a) Plan eligibility requirements
  - (b) Benefit eligibility requirements, accrual, vesting
  - (c) Benefit/contribution formula, including the methods of integration with government-provided benefits
  - (d) Payment options and associated adjustments to the amount of benefit
  - (e) Ancillary benefits
  - (f) Benefit subsidies and their value, vest or non-vested
  - (g) Participant investment options
  - (h) Required and optional employee contributions
  - (i) Phased retirement and DROP plans
- (6a) Given a specific context, synthesize, evaluate and apply principles and features of executive deferred compensation retirement plans.
- (8a) Perform valuations for special purposes, including:
- (i) Plant termination/windup
  - (ii) Accounting valuations
  - (iii) Open group valuations
  - (iv) Plan mergers, acquisitions and spinoffs

### **Sources:**

Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen, 11th Edition) Ch. 14, pp. 250-263

DA-156-15: Moving from a DB Executive Retirement Plan to a DC Executive Retirement Plan

DA-112-13: Converting Pension Plans from a Defined Benefit to a Defined Contribution Design - Issues to Consider in Canada

DA-143-13: Comp of IAS 19, Rev. 2011 with FASB ASC 715 Summary of Provisions Affecting Accounting for Postretirement

## 6. Continued

DA-804-13: FASB Accounting Standards Codification Topic 715

### **Commentary on Question:**

*Commentary listed underneath question component.*

### **Solution:**

- (a) Describe five issues ABC Company should consider when designing the defined contribution SERP.
- Eligibility – What will be the eligibility requirements for plan participation? Participation could be limited to top hat employees, C-level executives, those impacted by legislative limits. Consider whether participation should mimic the DB plan being replaced.
  - Benefit Level
    - How will benefit formula be determined? Potential options include
      - Uniform percentage of salary: This is appropriate if the intent is to provide consistent benefits for all participants
      - Tiered percentages: This is appropriate if the intent is to reward longer service employees
      - Formula offset by other benefits: This is appropriate if the plan is intended to replace benefits lost due to legislative limits
    - Does the benefit level achieve corporate goals?
      - Is the benefit competitive regarding benefit level and cost?
      - Does the benefit coordinate with other benefits? How does it relate to the total reward package?
      - What message is the benefit sending, and is it consistent with overall compensation philosophy?
      - Does the benefit compare appropriately to the DB plan being replaced? Is it intended to completely replace the plan, or to offer a higher or lower benefit?
      - Is the benefit tied to performance in order to encourage specific behaviors?
  - Vesting and handcuffs
    - What are the vesting provisions? Options include
      - Service-based
      - Class-year
      - Performance-based
    - What is the purpose of the vesting requirement?
      - To retain employees?
      - To incent employees to leave at a certain age?
      - Do certain criteria need to be met to get the benefit?



## 6. Continued

- Distributions and payout options
    - What form of benefit will be offered, and will the employee have a choice of benefit? Payout options include lump sum, installment payments, annuity options.
    - What timing of payment will be allowed? Options include at a specific age, at termination of employment, or employee choice.
    - Do any events trigger early distribution, such as change in control?
    - What is the purpose of the distributions offered? Is the plan intended to provide lifetime security, or portable benefits?
  - Plan Structure
    - Will the plan be funded or unfunded? There are trade-offs between security of benefit, restrictions on funding vehicles, and a need to avoid constructive receipt issues.
    - Will there be actual or imputed contributions?
    - Will there be actual or imputed investment income? How will the rate of return be determined for imputed investment?
    - Will employees have choice in how contributions are invested?
    - What income will contributions be based on? Bonuses and deferred compensation may be included or excluded depending on the desired goal of the program.
- (b) Describe in words the accounting implications, under U.S. accounting standard ASC 715, if ABC decides to freeze the defined benefit SERP and current participants participate in the new defined contribution SERP for future service.

### **Commentary on Question:**

*Successful candidates fully explained the curtailment beyond the expense/balance sheet impact, such as when to recognize it, the relative size of the charge, and that expense will continue for the DC plan.*

Curtailment accounting is required when an event significantly reduces years of expected future service, or eliminates accrual of future benefits for a significant number of participants. The DB plan will be freezing, so all future service is eliminated, and curtailment changes must be determined.

The unrecognized prior service cost and transition credits are recognized in proportion to the reduction of future years of service. In this case, all future years are eliminated, so the entire outstanding amount must be recognized as a one-time charge/income.

PBO will be reduced to the ABO, resulting in a PBO gain. If there is an existing outstanding loss, the gain will first offset the loss, and the excess, if any, will be recognized as a one-time income. If there is an outstanding gain, the total gain due to the curtailment will be recognized as a one-time income.

## **6. Continued**

If the curtailment results in a one-time cost, this should be recognized when the event is known and reasonably estimable. If the curtailment results in a one-time income, it should be recognized when the plan will actually change.

The magnitude of the impact will depend on whether the freeze is hard or soft. If only service is frozen, the impact will be smaller than if pay and service are frozen.

The company will continue to have accounting expense for the DB plan, after the adjustments for the curtailment. Expense for the defined contribution plan will be equal to the contributions.

## **7. Learning Objectives:**

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.
4. The candidate will be able to evaluate plan design risks faced by sponsors of retirement plans and retiree health plans.
5. The candidate will be able to evaluate sponsor's goals for the retirement plan, evaluate alternative plan types and features, and recommend a plan design appropriate for the sponsor's goals.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### **Learning Outcomes:**

Given a plan type, explain the relevance, risks and range of plan features including the following:

- (a) Plan eligibility requirements
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  - (g) Participant investment options
  - (h) Required and optional employee contributions
  - (i) Phased retirement and DROP plans
- (3b) Describe and contrast the risks face by participants of:
- (i) Government sponsored retirement plans
  - (ii) Single employer sponsored retirement plans
  - (iii) Multiemployer retirement plans, and
  - (iv) Social insurance plans
- (4a) Identify how plan features, temporary or permanent, can adversely affect the plans sponsor.

## 7. Continued

- (4b) Assess the risk from options offered, including:
  - (i) Phased retirement
  - (ii) Postponed retirement
  - (iii) Early Retirement
  - (iv) Option factors
  - (v) Embedded options
  - (vi) Portability options
- (4c) Recommend ways to mitigate the risks identified with a particular plan feature
- (4d) Analyze the issues related to plan provisions that cannot be removed.
- (4e) In a given context, assess the effect that changes in the plan design might have on collective bargaining agreements.
- (4f) Assess the impact of possible changes in plan design due to changes in legislation.
- (5a) Describe ways to identify and prioritize the sponsor's goals related to the design of the retirement plan.
- (5d) State relationships or recognize contradictions between a sponsor's plan design goals and the retirement risks faced by retirees.
- (5e) Identify the ways that regulation impacts the sponsor's plan design goals.
- (5f) Design retirement programs that manage retirement risk and are consistent with sponsor objectives.
- (8f) Demonstrate the sensitivity of financial measures to given changes in plan design.
- (8g) Describe how a plan's funded status can impact union negotiations and multiemployer plans.

### **Sources:**

DA-124-13: Funding Risks for Multi-Employer Pension Plans

DA-113-13: Multi-Employer Plans

### **Commentary on Question:**

*Commentary listed underneath question component.*

## 7. Continued

### Solution:

- (a) Describe the factors that create cost pressures for multiemployer plans.

### Commentary on Question:

*Successful candidates described the factors rather than providing a list.*

- Total annual cost of plan = annual normal cost + annual admin. expense + annual amortization payments
- Cost pressures arise when the total annual plan costs exceeds the total annual contributions remitted to the trust
  - Cost pressures especially prevalent when annual amortization payments required to pay for funding deficiencies of the plan is on the rise because of various factors such as the ones listed below

Factors that can lead to cost pressures for pension plans include the following:

1. Aging demographics – e.g., mature plan or where the ratio of inactive participants (retirees) to active participants is greater than 1
2. Asset allocation/asset return volatility – bull/bear markets can lead to volatility in funded ratio of plan and therefore contribution volatility
3. Investment policy – asset liability mismatch can lead to contribution volatility
4. Secular market changes – low interest rates can lead to significant cost pressures due to increase in funding deficiency of the plan and thus requirement for increased contribution to cover increased annual amortization payments required to pay down the plan's deficit
5. Plan design – risk of contribution levels being inadequate to support the annual accruals
6. Plan benefits – e.g., plans that pay lump-sums upon termination that are based on mandated discount rates that are far less than the long-term expected discount rates used to value the pension liabilities on an on-going basis
7. Leverage – more than 50% of the contribution is used to cover normal cost; more of an issue for plans that cover participants working in cyclical industries
8. Withdrawal of key employer – can be a significant risk if the withdrawal changes the plan demographic profile, the plan is leveraged
9. Regulatory risk – risk of legislative changes that can inadvertently increase plan costs
10. Risk from the Difference between the Contribution Rate and the Cost of Accruals - if the difference between the contribution rate and the normal actuarial cost is small, plan has only a limited ability to absorb experience losses
11. Risk of a decline in hours worked - where a portion of the contribution is used to cover a deficit, a reduction in the hours worked leads to lower contributions to finance that deficit

## 7. Continued

12. Mortality/longevity risk - longevity improvements reflected in the liabilities are not sufficient for either or both plan members and their spouses
13. Retirement risk - plan members retire earlier than anticipated with a subsidized early retirement pension
14. Risks of intergenerational transfer - greater the amount by which current contributions differ from the normal actuarial cost, the greater is the wealth transfer among past generations, current generations, and future generations
15. Communication risk

- (b) Describe the options available to the Board of Trustees to address a funding shortfall in a multiemployer plan.

### **Commentary on Question:**

*Note that Candidates need not provide responses with the level of detail presented below to earn full credit, but rather demonstrate their understanding of the learning objective/outcome of the question.*

There are many options available to the BOT to address shortfall in MEPP.

The following is a list of available options that would help the BOT address funding shortfall from a more holistic perspective - assets and liabilities:

- Variability of funded status can be reduced by increasing the match between the assets and the liabilities. This can be achieved by:
  1. Reducing the equity allocation,
  2. Increasing the duration of the fixed income assets; and
  3. Applying other immunization-like tools such as duration matching, cash flow matching and annuitization of retired life liabilities.
- Employ an asset-smoothing method to reduce volatility of funded position of the plan.

Instead of using marked-to-market value of assets, if permitted by law, can implement an appropriate asset smoothing method that may be useful to provide for some deferred recognition of investment gains/losses.

- Assess appropriateness of the plan's asset allocation future rates of return used for funding valuations, given target asset allocations
- Utilize a cost method that will reduce cost volatility. For example, when the plan members are in an industry or division of the plan wherein the future new entrant stream is uncertain, it may be appropriate to utilize the entry age normal actuarial cost method, rather than the unit credit method.

## 7. Continued

If membership can be expected to age because of few new entrants, the unit credit normal actuarial cost can be expected to rise relative to the contribution rate, potentially creating a situation where the contribution rate does not even cover the normal actuarial cost.

- Minimize and mitigate interest rate and inflationary risks to which the plan's liabilities might be exposed
- Assess the difference between the contribution rate and the cost of benefit accruals. Assess the degree of asset/liability mismatch and the current level of "margin":
  - If the margin is too small for the level of the asset/liability mismatch, the benefits may not continue to be supportable.
  - If the margin is more than sufficient, it suggests that the benefits can be improved (a decision of the board), but the advice that the actuary provides to the board would include the point at which the margin becomes too small.
- Hours Worked – can pursue stress testing to determine the extent of the risk of a reduction in hours worked. When undertaking such stress testing, it is important not only to reflect a reduction in hours worked, but also to reflect any other experience that is likely to occur due to the reduction in hours worked. Examples of other adverse experience include:
  - If the reduction in hours is likely to be borne by older members; then there may be associated losses due to additional retirements;
  - If the reduction in hours is likely to be borne by younger members, then there may be an associated increase in the unit credit normal cost rate;
  - Many MEPPs permit the banking of hours such that a reduction in hours worked (leading to a reduction in contributions) may not result in a similar reduction in the hours credited under the plan (at least in the short term); and
  - Some MEPPs have a relatively low threshold for a full year of credit, in which case reduced hours (and the related reduction in plan contributions) may not result in reduced credits.
- Mortality/Longevity Risk – assess reasonability of current mortality rates used for valuations; want to use mortality rates that reflects improvements from the date of the mortality table to the date of the valuation and improvements after the date of the valuation and a base table that is reflective of the plan's membership

## 7. Continued

- Plan Design Issues – review and assess the plan costs/financial risks of providing certain benefits such as early retirement subsidies. Early retirement subsidies expose the plan to financial risk in the event of an economic downturn, as members elect to retire early in the face of less work.

Also, automatic inflation adjustments, such as a final-pay plan design or contractually committed indexing, increase the financial risk of a plan.

May want to consider eliminating early retirement subsidies, COLA awards (perhaps consider awarding on an ad hoc basis rather than periodic basis), lump-sum benefits after certain age (e.g., no LS benefit if terminate membership after early retirement age), or unreduced benefits due to disability, or subsidized spousal death benefits

- Implement policies that would encourage participation of new employers and incent current employers to stay in fund
- Pursue open-group projections (deterministic) – BOT can assess the impact to funded ratios and contribution levels due to a decline in active membership over a certain period of time

This would be very useful especially if the plan is very mature and annual benefit payments often far exceed annual contributions; projections can help to anticipate and take corrective actions before funding levels start to deteriorate.

- Increase contribution levels
- Implement a margin technique during contribution negotiation, e.g., of a typical margin is

Total annual cost of plan = annual normal cost + annual admin. expense + annual amortization payments over some period of time (say 10 years)

- Regulatory Risk – BOT should follow best practice for governance, monitoring the evolution of legislation and regulatory policies, maintaining a sufficient funding level (i.e., not putting members' benefits at risk), and proactively lobbying regulators and educating them on the issues unique to these types of plans.

BOT may also want to consider taking advantage of any kinds of funding reliefs meant to help MEPP to stay healthy and meet future benefit obligations.



## **7. Continued**

- Communications Risk - conduct a communications audit, identifying gaps and shortfalls, and develop a plan to address them. The only way a MEPP can be successful in the long run is if it is transparent to all parties.

## 8. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### Learning Outcomes:

Describe the structure of the following plans:

- (a) Traditional defined benefit plans
  - (b) Hybrid plans
  - (c) Defined contribution plans
  - (d) Retiree Health plans
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.
- (8f) Demonstrate the sensitivity of financial measures to given changes in plan design.

### Sources:

DA-105-13: Measuring Terminable Postretirement Obligations  
Fundamentals of Retiree Group Benefits, Yamamoto: Ch. 1, Ch. 4 (excluding pp. 68-89)

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Explain why plan sponsors are reducing or eliminating their post-retirement health benefit plans.
  - Health care benefits are tax-effective but employers do not receive a full credit for providing the benefit because of the hidden costs of their subsidy to the plans.
  - The benefits are valuable for a minority of active employees; employees start valuing the benefits only after they start considering retirement (i.e., only appreciated by employees when they start thinking about retirement).
  - Historical employment relationship that focused on long-term career may be diminishing.
  - As workers assert their independence and their lack of loyalty to the employer, the sense of providing retiree health care as a social responsibility is quickly evaporating.
  - As more of the competitors eliminate retiree health care coverage, it makes it easier to drop or reduce the benefit.
  - The cash cost of retiree health care is increasing faster than any other cash item for most companies.

## 8. Continued

- Since most employers must produce financial statements in accordance with generally accepted accounting principles, the accrual cost required by FASB and GASB is a significant financial measure.
  - There is continuing steep increase in plan costs due to participant count increases, anticipated increases from price inflation and additional utilization of medical goods and services.
  - Group payments increase for a closed group many years after the count has begun decreasing, possible beyond 50 years, due to aging affect and mostly due to compounding effect of health care trend (absent a plan cap).
  - Unions have shown willingness to negotiate with plan sponsors to eliminate or reduce health care benefits.
- (b) Critique the actuarial assumptions model used for post-retirement health benefit plan valuations given that benefits may be reduced or eliminated at any time.

### **Commentary on Question:**

*Successful candidates focused on the critique of the actuarial assumptions model.*

- The current model does not recognize the risk of termination when the retiree plan is terminable at the decision of the plan sponsor.
- The current model does not distinguish between a promise that is legally binding and a promise that depends on one party's willingness to pay. Most post-retirement HC benefits are not legally binding (unless in CBA).
- The current actuarial model does not reflect recognition that high payment far in the future implies a higher likelihood of future sponsor decisions to reduce benefits.
- The current actuarial model contributes to less pragmatic funding decisions, less sensible plan design decisions and less realistic generational expense allocations.
- A basic principle behind the current model is that when the employee retires, a financial reserve should be equal to the expected future benefit payments, which are uncertain. With the benefit subject to termination, the payments are uncertain and targeting a full financial reserve is not realistic.
- There is a major disconnect between actuarial model, projecting increasing payments for decades, and the reality of a plan sponsor contemplating major changes within a short period of time.
- If plan sponsors continue to terminate their plans, the measurement loses credibility.
- The postretirement actuarial model was derived from the pension model, where accrued benefits cannot be reduced.
- The employee or retiree in a terminable plan will have a diminishing asset and the plan sponsor should have a lower liability.

## **8. Continued**

- The readers of financial statements are misled by an overstated liability, as it does not adjust for probability of termination.

## 9. Learning Objectives:

1. The candidate will be able to analyze different types of registered/qualified retirement plans and retiree health plans.
3. Candidate will be able to analyze the risks faced by retirees and the participants of retirement plans and retiree health plans.
4. The candidate will be able to evaluate plan design risks faced by sponsors of retirement plans and retiree health plans.

### Learning Outcomes:

Describe the structure of the following plans:

- (a) Traditional defined benefit plans
- (b) Hybrid plans
- (c) Defined contribution plans
- (d) Retiree Health plans

Given a plan type, explain the relevance, risks and range of plan features including the following:

- (a) Plan eligibility requirements
  - (b) Benefit eligibility requirements, accrual, vesting
  - (c) Benefit/contribution formula, including the methods of integration with government-provided benefits
  - (d) Payment options and associated adjustments to the amount of benefit
  - (e) Ancillary benefits
  - (f) Benefit subsidies and their value, vest or non-vested
  - (g) Participant investment options
  - (h) Required and optional employee contributions
  - (i) Phased retirement and DROP plans
- (3d) Propose ways in which retirement plans and retiree health plans can manage the range of risks faced by plan participants and retirees.
- (4a) Identify how plan features, temporary or permanent, can adversely affect the plans sponsor.

### Sources:

Allen, Chapter 7, 11

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the advantages and disadvantages of providing company stock as an investment option in 401(k) plans.

## 9. Continued

### **Commentary on Question:**

*Successful candidates provided 4 advantages and 4 disadvantages.*

#### Advantages:

- Employee motivation
- Attract talent
- Retention
- Corporate and employee success tied together
- More stock is in friendly hands

#### Disadvantages:

- Fiduciary liability
- Risk of poor diversification
- Risk of being outside risk tolerance
- Risk of loss of retirement savings if bankrupt
- Employees may be disgruntled if the stock loses value

(b) Describe the factors contributing to poor diversification in 401(k) plans from a behavioral finance perspective.

- Individual investors are loss-averse
  - More remorse as a result of loss than satisfaction as a result of gain
  - effect on owning stock: may sell low if stock performs poorly and not recover after investing funds conservatively
- Hyperbolic discounting
  - tendency to reduce importance of future in the decision-making process
  - effect on owning stock: may not understand that improper diversification may have adverse impact in the future and focus only on current company prospects
- Procrastination and inertia
  - tendency to delay a decision and difficulty in taking action or change course
  - effect on owning stock: including stock in the mix, may not ensure asset allocation in line with risk profile
- Status quo bias
  - Preference for status quo to making active decision
  - effect on owning stock: if recommended profile out of line may not buy/sell stock to rebalance
- Complexity
  - difficulty of making retirement planning decisions involving the future
  - effect on owning stock: hard to predict expected return having poorly diversified assets along with funds in various asset classes

## 9. Continued

- Choice overload
  - sheer volume of choice causes paralysis analysis
  - effect on owning stock: one more choice increase overload

## 10. Learning Objectives:

8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### Learning Outcomes:

- (8a) Perform valuations for special purposes, including:
- (i) Plant termination/windup
  - (ii) Accounting valuations
  - (iii) Open group valuations
  - (iv) Plan mergers, acquisitions and spinoffs
- (8c) Demonstrate how the retirement plan's cash inflows and outflows can affect the plan sponsor.
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.

### Sources:

DA-804-13: FASB Accounting Standards Codification Topic 715

### Commentary on Question:

*Successful candidates identified the event as both a curtailment and special termination benefit. Successful candidates showed both formulas and/or written explanation along with numerical calculations. Reasonable approaches that may have differed from below were given full credit.*

### Solution:

Calculate the revised 2015 Net Periodic Benefit Cost and Accumulated Other Comprehensive Income (AOCI) under U.S. accounting standard ASC 715.

Show all work.

All numbers in \$1,000s

- The reduction in future expected remaining service lifetime triggered a curtailment.
  - Liability impact =  $\$150,000 - \$140,000 = \$10,000$
  - Liability increase considered a curtailment loss and used to offset the existing unrecognized gain. No curtailment charge recognized in P&L.
  - New unrecognized actuarial gain:
    - $(248,929) + 10,000 = (238,929)$
- The additional benefits given through the early retirement window were considered a special termination benefit.
  - Liability impact =  $\$225,000 - \$150,000 = \$75,000$
  - Full amount of the PBO increase is recognized immediately in P&L.



## 10. Continued

- Adjusted PBO after Window:
  - PBO before window increased by additional PBO due to immediate decrement and additional PBO due to enhanced window benefits.
  - $1,333,479 + 10,000 + 75,000 = 1,418,249$
- Adjusted Service Cost after Window:
  - Original Service Cost reduced by service prior to window for the 500 employees who accepted.
  - $62,543 - 10,000 = 52,543$
- Adjusted Benefit Payments after Window:
  - Benefit payments increased by 17,000 due to window
  - $BP = 23,800 + 17,000 = 41,8000$
- Interest Cost:
  - Interest Cost =  $(PBO + SC) \times d - BP \times d/2$   
d = Discount Rate = 4%
  - $IC = (1,418,479 + 52,543) \times 4\% - 41,800 \times 4\%/2 = 58,005$
- Expected Return on Assets:
  - $EROA = \text{Fair Value of Assets} \times r + \text{Contributions} \times r/2 - BP \times r/2$
  - r = Expected Asset Return = 6.5%
  - $EROA = 1,448,063 \times 6.5\% + 39,050 \times 6.5\%/2 - 41,800 \times 6.5\%/2 = 94,035$
- Amortization of Gain/Loss:
  - Compare the unrecognized gain against the 10% corridor.
    - The 10% corridor =  $10\% \times \max(\text{FV Assets}, \text{PBO})$
    - $10\% \times \max(1,448,063, 1,418,249) = 144,806$
    - Unrecognized (g)/l outside corridor =  $-(238,929 - 144,806) = (94,123)$
  - Calculate the Revised Average Future Working Lifetime (*using the information in the question, credit was also given for using the information from the case study*)
    - Expected total remaining service lifetime for remaining participants divided by number of remaining participants
    - $(67,000 - 7000)/(3280 - 500) = 21.6$
  - Amortization = unrecognized (g)/l outside corridor divided by revised average future working lifetime
    - $(94,123)/21.6 = (4,358)$
- Total 2015 expense (net periodic benefit cost):
  - $SC + IC - EROA + \text{Amortization of PSC} + \text{Amortization of (G)/L} + \text{Impact of Special Termination Benefit}$
  - $52,543 + 58,005 - 94,035 + 0 - 4,358 + 75,000 = 87,155$

## 10. Continued

- $\text{AOI} = \text{Unrecognized actuarial (g)/l} + \text{Unrecognized PSC}$   
 $(238,929) + 0 = (238,929)$

## 11. Learning Objectives:

6. The candidate will be able to analyze, synthesize and evaluate plans designed for executives or the highly paid.

### Learning Outcomes:

- (6a) Given a specific context, synthesize, evaluate and apply principles and features of executive deferred compensation retirement plans.
- (6b) Given a specific context, apply principles and features of supplemental retirement plans.

### Sources:

DA-803-13: Evaluating Financing Options for Nonqualified benefit plans  
Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen, 11th Edition - Chapter 14

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the considerations when evaluating whether to finance or fund non-qualified pension plans.

### Commentary on Question:

*Successful candidates demonstrated their understanding of tax deductibility, contributions subject to creditor claims, and various implications for the employee, the employer, and shareholders.*

The following are considerations when evaluating whether to finance or fund non-qualified pension plans:

- Contributions to a non-qualified pension plan are subject to the claims of the company's creditors.
- Financial statement volatility: How will financing affect the company's P&L? How will the financing option match the plan's liabilities over the life of the plan?
- Cash flow: Is cash available for financing?
- Benefit security: Financing increases benefit security. However, benefits are not guaranteed if a company is in bankruptcy.
- Tax advantages: Tax consequences of the financing vehicle should accommodate the company's tax status. However, note that contributions to a non-qualified plan are not tax deductible for the employer until benefits are received by the employee (executive).
- Current vs. future shareholders: When a company chooses not to finance, they are pushing the responsibility for today's benefits to future shareholders.
- Funding is independent of accounting expense.

## 11. Continued

- (b) Describe the features of four financing or funding options for non-qualified pension plans.

**Commentary on Question:**

*Successful candidates identified four financing/funding options for non-qualified plans and describe their distinguishing features – e.g., how they operate and what the tax implications may be. Though not listed in the solution below, credit was also given for describing secular trusts and financing with company stock.*

Four financing or funding options for non-qualified plans are: 1) Rabbi Trust; 2) Corporate-Owned Life Insurance (COLI); 3) purchasing taxable securities; and 4) self-financing with cash.

- 1) Rabbi Trust:
  - a. Employer creates an irrevocable trust.
  - b. The terms of the trust limit the use of the assets to providing benefits for executives.
  - c. Assets cannot be used by current or future management, but funds are subject to creditor claims.
- 2) COLI:
  - a. Company purchases life insurance policy on the life of the plan participant.
  - b. Cash value of policy offsets the benefit liability.
  - c. Company is named as the owner and beneficiary of the policy and receives a tax-free death benefit if the policy is held until the death of the insured.
  - d. This option provides very little security to the executive since the cash value and death benefit associated with the policy are under the employer's control
- 3) Taxable securities:
  - a. Company purchases taxable securities (e.g., stocks, bonds, or mutual funds) to offset benefit liability.
  - b. Realized gains and dividends are taxable as corporate income.
  - c. This option is useful if the employer's tax situation does not allow for deductions under other options.
- 4) Self-financing with cash:
  - a. Company's cash flow is used to finance executives' unsecured, promised retirement benefit.
  - b. Need to consider constructive receipt issues and tax implications to participants
  - c. Assets are not protected from creditor claims.

## 11. Continued

- (c) Describe the considerations in choosing a financing or funding option for non-qualified pension plans.

**Commentary on Question:**

*Successful candidates demonstrated their understanding of the factors to consider when evaluating a particular funding vehicle.*

When choosing a financing or funding option for a non-qualified pension plan, the following factors need to be considered:

- After-tax return: Will the after-tax growth of the asset track against the tax-deferred growth of the benefit?
- P&L impact: Will the asset generate a P&L gain that will offset the P&L expense of the non-registered plan?
- Cash flow: Will the asset require excessive amounts of cash, either as contributions or for paying benefits?
- Present value: Will the cost of the security be minimal and provide a positive return to the company given the cash outlay?
- Asset-liability matching: Will gains and losses in the liability be appropriately hedged by the asset?
- Flexibility: Can the asset be used in multiple circumstances, and will it meet the liquidity needs of the employer in paying benefits?
- Security: How does the asset perform in conjunction with Rabbi Trusts and other security devices?

## **12. Learning Objectives:**

2. The candidate will understand the impact of the regulatory environment on plan design.
4. The candidate will be able to evaluate plan design risks faced by sponsors of retirement plans and retiree health plans.
5. The candidate will be able to evaluate sponsor's goals for the retirement plan, evaluate alternative plan types and features, and recommend a plan design appropriate for the sponsor's goals.
6. The candidate will be able to analyze, synthesize and evaluate plans designed for executives or the highly paid.
8. The candidate will be able to recommend and advise on the financial effects of funding policy and accounting standards in line with the sponsor's goals, given constraints.

### **Learning Outcomes:**

- (2c) Test for plan design restrictions intended to control the use of tax incentives.
- (4a) Identify how plan features, temporary or permanent, can adversely affect the plans sponsor.
- (4c) Recommend ways to mitigate the risks identified with a particular plan feature
- (4f) Assess the impact of possible changes in plan design due to changes in legislation.
- (5e) Identify the ways that regulation impacts the sponsor's plan design goals.
- 6a) Given a specific context, synthesize, evaluate and apply principles and features of executive deferred compensation retirement plans.
- (6b) Given a specific context, apply principles and features of supplemental retirement plans.
- (6c) Integrate a plan for executives with the basic benefit plan.
- (8d) Advise retirement plan sponsors on funding costs including tax deductibility, required contributions and other alternatives to meet the sponsor's goals, consistent with government regulation.
- (8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.
- (8f) Demonstrate the sensitivity of financial measures to given changes in plan design.

## 12. Continued

### Sources:

Allen Ch. 3, 8

Morneau Shepell Ch. 1, 5

Case Study

### Commentary on Question:

*Successful candidates included at least two valid impacts under each Salaried and SRP plan and for each of the following: participants, plan sponsor considerations with respect to plan design and accounting.*

*Other valid points not listed below are also acceptable.*

### Solution:

Describe the impact of the increase on each of NOC's pension plans taking into consideration:

- the effect on plan participants;
- plan sponsor options with respect to plan design; and
- accounting implications.

NOC Full-Time Hourly Union Pension Plan:

*Participants*

- Hourly plan accrual is  $\$81 \times 12 = \$972$ / year of service so increase in limit does not apply to this plan

*Plan sponsor options with respect to plan design*

- The plan sponsor could choose to increase benefits in this plan if they are also increasing salaried plan benefits.

*Accounting implications*

- Likely no accounting impacts

NOC Full-Time Salaried Pension Plan

*Participants*

- higher benefits or higher funded benefits if SRP benefits are reduced as salaried limits are increased
- increased benefit security since funded
- Impacts employees earning  $> \$150,000$ /year – their qualified benefits will increase to cover salary up to  $\$200,000$ /yr.

*Plan sponsor options with respect to plan design*

- Could be more expensive for the plan sponsor since salaried benefits will increase and need to be funded

## 12. Continued

- Sponsor could choose to close or freeze the plan if it becomes too expensive (also accept other design alternatives)
- sponsor could also try to encourage early retirement to reduce the impact of increased benefit limits on funded plan costs

### *Accounting implications*

- Will need to set up a prior service cost recognized over average future working lifetime (AFWL)
- Increased future service cost and PBO
- Will likely increase EROA since assets will increase with requirement to fund more
- Any design changes chosen above would result in additional accounting impacts

### NOC Full-Time Salaried Supplemental Retirement Plan

#### *Participants*

- Lower SRP benefits since more will be paid from the qualified plan.
- Could have fewer participants in the SRP plan

#### *Plan sponsor options with respect to plan design*

- Sponsor could choose to enhance SRP benefits if it is desirable for retention of executives
- Sponsor could freeze SRP benefits if plans become overly expensive with the new limits
- The increased limit will be beneficial to the sponsor from a tax perspective

#### *Accounting implications*

- Prior service credit (negative prior service cost)
- Lower PBO and future service cost
- any design changes chosen above would result in accounting impacts (could have curtailment if froze plan)

### NOC Part-Time DC Pension Plan

- No direct impacts since \$3,000 limit does not apply to this plan
- If employer decides to close or freeze DB plan, DC plan could enhanced or expanded



### 13. Learning Objectives:

9. The candidate will be able to apply the standards of practice and guides to professional conduct.

#### Learning Outcomes:

- (9a) Apply the standards related to communications to plan sponsors and others with an interest in an actuary's results (i.e., participants, auditors etc.).

#### Sources:

ASOP 41, Actuarial Communications (DA-809-13)

#### Commentary on Question:

*Successful candidates identified that Part (b) was testing subsequent events and were able to describe the impact on the actuarial report referencing the professional standards.*

*Note that the question did not specify whether the actuarial report was a funding report or an accounting report. If the candidate assumed the report was a funding valuation, and thus utilizes prescribed mortality tables, partial marks were awarded.*

#### Solution:

- (a) Describe the disclosure items to be included in actuarial communications under applicable Actuarial Standards of Practice (ASOPs).

Responsible Actuary—Any actuarial communication should identify the actuary who is responsible for the actuarial communication and the intended users of the actuarial report.

Actuarial Documents—Any actuarial document should include the date and subject of the document with any additional modifier to make this entire description unique. Where an actuarial report for a specific intended user comprises multiple documents, the actuary should communicate which documents comprise the report. (Information necessary to satisfy section 3.2 of ASOP #41.)

The information date - the actuary should communicate to the intended user the date(s) through which data or other information has been considered in developing the findings included in the report.

In the actuarial report, the actuary should state the following:

The Actuarial Findings - e.g. the funded status of the plan, service cost, etc.

The Actuarial Methods and procedures used

The Actuarial Assumptions used

Membership Data used

Plan provisions

Changes in assumptions

## 13. Continued

The actuary should have sufficient clarity that another actuary qualified in the same practice area could make an objective appraisal of the reasonableness of the actuary's work as presented in the actuarial report.

The scope and intended purpose of the engagement or assignment

Acknowledgement of qualification as specified in the Qualification Standards

Any cautions about risk and uncertainty. The actuary should consider what cautions regarding possible uncertainty or risk in any results should be included in the actuarial report. Any limitations or constraints on the use or applicability of the actuarial findings contained within the actuarial communication including, if appropriate, a statement that the communication should not be relied upon for any other purpose.

Any conflict of interest. An actuary who is not financially, organizationally, or otherwise independent concerning any matter related to the subject of an actuarial communication should disclose any pertinent information that is not apparent.

This includes any situation where the actuary acts, or may appear to be acting, as an advocate.

Subsequent event(s) (if any). The actuary should disclose any relevant event that meets the conditions of a subsequent event.

Any information on which the actuary relied that has a material impact on the actuarial findings and for which the actuary does not assume responsibility or certain assumptions or methods prescribed by law - the actuary should disclose the following in the actuarial report:

- a. the applicable law under which the report was prepared;
- b. the assumptions or methods that are prescribed by the applicable law; and
- c. that the report was prepared in accordance with the applicable law.

Deviation from the Guidance of an ASOP—If, in the actuary's professional judgment, the actuary has deviated materially from the guidance set forth in an applicable ASOP, other than as covered under sections 4.2 or 4.3 of this standard, the actuary can still comply with that ASOP by providing an appropriate statement in the actuarial communication with respect to the nature, rationale, and effect of such deviation.

- (b) Describe the implications of the study when completing the actuarial report, taking into consideration applicable professional standards.

The completion of a mortality experience study would be a subsequent event. The actuary should disclose the mortality experience study results in the actuarial communication as the study does meet the definition of a subsequent event.

The mortality experience study has become known to the actuary after the latest information date of the report for which data or other information has been considered in developing the findings of the Report.

## 13. Continued

The mortality experience study has become known to the actuary before the valuation report is issued or filed.

The mortality experience study does have a material effect on the valuation results if it was to be reflected in the valuation results.

The actuary should revise the report before it is issued, unless impractical to do so.

Funding valuations in the US use prescribed tables unless a plan specific table is approved.

The actuary has learned of the results of the mortality experience study. The actuary should communicate those changes, and their implications, to the client and any other intended user to whom the actuary has communicated findings.

The actuary should communicate that the actuarial valuation report comprises multiple documents that include the mortality experience study.

In the actuarial report, the actuary should state the actuarial findings of the mortality experience study, and identify the methods, procedures, assumptions, and data used with sufficient clarity.

The actuary in their professional judgment can deviate from the guidance by not reflecting the mortality experience study in the valuation report by providing an appropriate statement in the actuarial communication with respect to the nature, rationale, and effect of such deviation.