RET DAU Model Solutions
Spring 2017

1. 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.

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

Learning Outcomes:

(8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.

(9e) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.

Sources:

DA-146-15: ASOP 6, Measuring Retiree Group Benefit Obligations

DA-168-17: IFRS and US GAAP: Similarities and Differences, Chapter 5 only

Solution:

(a) Describe retiree group benefit plan provisions that should be considered under Actuarial Standard of Practice No. 6, Measuring Retiree Group Benefit Obligations.

- *Covered benefits*: may include reimbursements for covered services, fixed-dollar payments for covered events (such as death benefits), and other monetary benefits.
- *Eligibility Conditions* - conditions related to age, service date of hire, employment classification and participation in other benefit programs, such as Medicare or a pension plan.
- *Benefit limitations, exclusions, and cost-sharing provisions* - such as deductibles, copayment, coinsurance and out-of-pocket limits.
- *Participant contributions* - consider the contributions formula, pre-retirement contributions (if any), and the extent that any caps on plan sponsor costs might affect the contributions.

1. Continued

- *Payment from Other Sources* - the cost of coverage in some retiree group benefit programs is partially or completely funded with payments from other sources such as retiree medical savings accounts, terminal leave balance, or non-employer funding sources.
- *Healthcare delivery system attributes* - any "lock-in" of costs?
- *Benefit options* - need to consider effect of benefit options and additional benefits, even though these benefits might require employee contributions, there might still be an impact to the employer's cost.
- *Anticipated future changes* – any communicated changes? Is there any historical pattern that would result in anticipated future changes?

(b) Describe the differences between U.S. accounting standard ASC 715 and international accounting standard IAS 19, Rev. 2011 when accounting for an unfunded retiree group benefit plan.

Recognition of re-measurements/gains and losses:

- Under IFRS, the effects of re-measurements (which include actuarial gains/losses) are recognized immediately in other comprehensive income (OCI) and are not subsequently recycled through the income statement.
- Under US GAAP, these gains/losses are recognized in the income statement either immediately or in the future. It amortizes amounts outside of a corridor over average future service of active participants (or life expectancy if mostly inactive population). Immediate recognition through P&L is also permitted. If gain/loss is amortized, the unamortized amounts are part of AOCI.

Past service costs:

- Under IFRS, all prior service costs (positive or negative) are recognized in profit or loss when the employee benefit plan is amended and are not allowed to be spread over any future service period, which may create volatility in profit or loss.
- This is different from US GAAP, under which prior service cost is recognized in OCI at the date the plan amendment is adopted and then amortized into income over the participants' remaining years of service, service to full eligibility date, or life expectancy, depending on the facts and circumstances. It is a part of past service cost.

1. **Continued**

Presentation of Net Benefit Pension Cost:

- Under IFRS, there is no requirement to present the various components of pension cost as a net amount. As such, companies have flexibility to present components of net benefit cost within different line items on the income statement. Components recognized in determining net income (i.e., service and finance costs, but not actuarial gains and losses) may be presented as
    i. a single net amount (similar to US GAAP) or
    ii. Those components may be separately displayed.
- Under US GAAP, all components of net benefit cost must be aggregated and presented as a net amount in the income statement. Although it is appropriate to allocate a portion of net benefit cost to different line items (such as cost of goods sold or general and administrative expenses, based on which line items for other employee costs are included), disaggregating the components of net benefit cost is not permitted.

Settlements:

- Fewer settlements may be recognized under US GAAP (because of an accounting policy choice that is available under US GAAP but not IFRS). Under US GAAP, a settlement gain or loss normally is recognized in earnings (AOCI) when the settlement occurs. However, an employer may elect an accounting policy whereby settlement gain or loss recognition is not required if the cost of all settlements within a plan year does not exceed the sum of the service and interest cost components of net benefit cost for that period. If the settlement does exceed the threshold, then a pro-rata portion of the unrecognized gain/loss would need to be recognized in the P&L expense based on the amount settled as a percentage of the PBO immediately before the settlement. Also, for US GAAP, a partial settlement of any one participant's obligation is generally not allowed.
- Under IFRS, a settlement gain or loss is recognized when the settlement occurs. If the settlements are due to lump sum election by employees as part of the normal operating procedures of the plan, settlement accounting does not apply. Also, a partial settlement occurs if a transaction eliminates all further legal or constructive obligations for part of the benefits provided under a DB plan.

1. Continued

Curtailments:

- Under US GAAP, a curtailment is defined as an event that significantly reduces the expected years of future service of present employees or eliminates for a significant number of employees the accrual of defined benefits for some or all of the future service. Curtailment losses should be recognized when it is probable that a curtailment will occur. Curtailment gains are recognized when realized (i.e., once the terminations have occurred or the plan amendment is adopted).
- Under IFRS, the definition of a curtailment is limited to "a significant reduction by the entity in the number of employees covered by a plan". Curtailment gains and losses should be recorded when the curtailment occurs.

2. 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:

(8c) Demonstrate how the retirement plan's cash inflows and outflows can affect the plan sponsor.

(8f) Demonstrate the sensitivity of financial measures to given changes in plan design.

Sources:

Duration and convexity for pension liabilities, pension section news issue #81 September 2013

Commentary on Question:

Successful candidates identified formulas and showed all calculations.

For part c), candidates needed to determine the present value of the cash flows at two different discount rates other than 5%. The model solution has determined the present values of the cash flows at +/- 1% (i.e. at 4% and 6%) from 5%. Candidates who used other spreads were also given full credit.

Solution:

(a) Macauley duration

Present Value (PV) of cash flows at 5%:

Date	Amount	Year Discounted	PV CF*
1/1/2018	100,000	1	95,238
1/1/2020	200,000	3	172,768
1/1/2021	50,000	4	41,135
1/1/2025	1,000,000	8	676,839
1/1/2030	100,000	13	53,032

*PV CF = Amount x (1.05)^(- Year Discounted)

PV at 5% = 95,238 + 172,768 + 41,135 + 676,839 + 53,032 = 1,039,012

2. Continued

PV of cash flows at 5% weighted by time:

Date	PV CF	t	PV CF x t
1/1/2018	95,238	1	95,238
1/1/2020	172,768	3	518,303
1/1/2021	41,135	4	164,540
1/1/2025	676,839	8	5,414,715
1/1/2030	53,032	13	689,418

PV at 5% weighted by time = 95,238 + 518,303 + 164,540 + 5,414,715 + 689,418 = 6,882,214

Macauley duration = PV at 5% weighted by time / PV at 5%
= 6,882,214 / 1,039,012
= 6.62

(b) Modified duration

Modified duration = Macauley duration / (1+ i / Payments per year)

i = 5%
Payments per year = 1

Modified duration = 6.62 / 1.05 = 6.31

(c) Effective duration

The present value of cash flows must be calculated at equal incremental changes in the discount rate.

2. **Continued**

Date	Amount	Year Discounted	PV CF + 1%*	PV CF - 1%**
1/1/2018	100,000	1	94,340	96,154
1/1/2020	200,000	3	167,924	177,799
1/1/2021	50,000	4	39,605	42,740
1/1/2025	1,000,000	8	627,412	730,690
1/1/2030	100,000	13	46,884	60,057

*PV CF + 1% = Amount x (1.06)^(- Year Discounted)
**PV CF - 1% = Amount x (1.04)^(- Year Discounted)

PV CF + 1% = 94,340 + 167,924 + 39,605 + 627,412 + 46,884 = 976,164
PV CF – 1% = 96,154 + 177,799 + 42,740 + 730,690 + 60,057 = 1,107,441

Effective duration = (PV CF - 1% - PV CF + 1%) / (2 x PV at 5% x 1%)
= (1,107,441 - 976,164) / (2 x 6,882,214 x 1%)
= 6.32

(d) Convexity

Show all work.

Convexity = (PV CF - 1% + PV CF + 1% - 2 x PV at 5%) / (2 x PV at 5% x $(1\%)^2$)
= (1,107,441 + 976,164 – 2 x 6,882,214) / (2 x 6,882,214 x 0.0001)
= 26.86

3. 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.

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

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

Sources:

DA 110-13 Integration with social security study note

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Calculate the projected replacement ratios at retirement for Employee H and Employee S from the DC plan.

Commentary on Question:

Candidates must show all work in order to get full credit. No points were awarded for including social security benefits at retirement in the replacement ratio calculation. Candidates could assume future DC contributions were made at the end of the year, or equally throughout the year, so both end of year interest and middle of the year interest assumptions received full points.

Employee S:

1. Estimate DC balance at retirement = current DC account balance accumulated with interest + future contributions with interest
   DC pension includes bonus for employee S

3. Continued

Current DC balance accumulated with interest =
= 225,000 x (1.05^15) = 467,759

Future contributions with interest (assumes DC contributions are made at the end of the year =
= (100,000 + 25,000) x 0.12 x [(1.05^14) + 1.03*(1.05^13) + . . . + (1.03^14)]
= 15,000 x [this is the future value of an increasing annuity]
= 15,000 x (1.05^15) x [1 – (1.03/1.05)^15] / (0.05 – 0.03)
= 15,000 x 26.04804
= 390,721

Total DC balance at retirement = 467,759 + 390,721 = 858,480

2. Annuitize the DC balance = 858,480 / 13 = 66,037

3. Calculate income at retirement (age 64) =
   = (100,000 + 25,000) x (1.03^14)
   = 189,074

4. Calculate replacement ratio = 66,037 / 189,074 = 35%

Employee H:

1. Estimate DC balance at retirement = current DC account balance accumulated with interest + future contributions with interest
   DC pension excludes overtime for Employee H

   Current DC balance accumulated with interest =
   = 130,000 x (1.05^23) = 399,298

   Future contributions with interest (assumes DC contributions are made at the end of the year =
   = (60,000 + 0) x 0.12 x [(1.05^22) + 1.02*(1.05^21) + . . . + (1.02^22)]
   = 7,200 x [this is the future value of an increasing annuity]
   = 7,200 x (1.05^23) x [1 – (1.02/1.05)^23] / (0.05 – 0.02)
   = 7,200 x 49.820816
   = 358,710

   Total DC balance at retirement = 399,298 + 358,710 = 758,008

2. Annuitize the DC balance = 758,008 / 13 = 58,308

3. **Continued**

3. Calculate income at retirement (age 64) =
   = (60,000 + 10,000) x (1.02^22)
   = 108,219

4. Calculate replacement ratio = 58,308 / 108,219 = 54%

(b) Compare and contrast the direct versus indirect method of integrating the DC plan with Social Security.

Commentary on Question:
The question asked for methods of integrating the DC pension plan with social security; no points were awarded for discussing methods of integrating a DB pension plan.

The **Direct Method** of integrating the DC plan with social security is the contribution offset method.
Example: change the contribution formula to be (12% - X%) below the Social Security wage threshold and 12% above the wage threshold.

- The direct method addresses the disparity of social security benefits relative to earnings for higher income individuals

The Indirect Method is to lower the DC contribution percentage based on the average employee and the company's target replacement ratio.
Example: change the contribution formula to be 7% for all covered earnings

- The indirect method does not address the skew of social security benefits. Social security benefits have a higher value and provide a higher replacement ratio for lower income individuals
- The indirect method may be easier to administer

Another Indirect Method is to opt out of Social Security and provide a benefit at least as good.

(c) Recommend an employer contribution formula to integrate the DC plan with Social Security using the direct method that results in the same replacement ratio at retirement age for Employee S and Employee H.

Show all work.

Commentary on Question:
Part (c) was a defective question. Partial credit was given for attempting to answer the question. The defective question was factored into the final pass mark so that nobody was penalized for not attempting to answer the question.

4. Learning Objectives:

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

7. The candidate will be able to analyze/synthesize the factors that go into selection of actuarial assumptions.

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

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
(e) Other alternative retirement plans

(7d) Recommend appropriate assumptions for a particular type of valuation and defend the selection.

(7e) Select demographic and economic assumptions appropriate for a projection valuation.

(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.).

(9c) Explain and apply relevant qualification standards.

(9e) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.

Sources:

DA-137-13: Pension Projections

DA-142-15: ASOP 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions

DA-809-13: ASOP 41, Actuarial Communications

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

Commentary on Question:

For parts (a) and (b), successful candidates provided not only the affected assumptions, but also the rationale and some explanations surrounding the impact of these assumptions on the Net Periodic Pension Cost (NPPC).

4. **Continued**

Solution:

(a) Identify assumptions that may be affected by the economic downturn.

Commentary on Question:
To receive full credit, candidates needed to identify 6 relevant assumptions.

- Discount rate
- Salary scale
- Expected return on assets
- Withdrawal/termination rates
- Retirement rates
- Inflation
- IRS pay limit
- New entrant assumption.

(b) Evaluate four key assumptions from part (a) with respect to:

(i) Potential change in assumption

(ii) Impact on NPPC

No calculations required.

Commentary on Question:
The solution below is a sample and not intended to be an exhaustive list of possible scenarios. Successful candidates provided an explanation to support the potential change in assumption and the corresponding impact on NPPC.

(i)

- Discount rate: The discount rate may decrease from its current level as the economy declines because the yield curves allowed for creating the discount rates have shifted downward.
- Salary scale: The salary scale may decrease from its current level because the company is unable to provide the same pay increases as have been provided historically
- Withdrawal/termination rate: The withdrawal rate may increase if the company determines that it will need to lay-off staff as economic conditions worsen.
- Inflation rate: The inflation rate may decrease, as the economy continues to decline since this assumption is linked to the ongoing health of the economy. This rate may also be linked to the salary scale.

4. **Continued**

(ii) Impact to **NPPC** due to change in:

- Discount rate: A decrease in discount rate will increase the NPPC because account balances receive less discounting and the present value of the liability will be higher.
- Salary scale: A decrease in salary scale will decrease the NPPC because in an open plan, the liability will decrease when pay increases are projected to be lower.
- Withdrawal/termination rate: An increase in withdrawal rate will decrease the DBC because the liability will decrease due to a higher number of leavers who are not vested or with potentially higher earnings compared to new entrants. *(Per comment above, another justification could have been provided for a decrease in withdrawal rates.)*
- Inflation rate: A decrease in inflation rate will decrease the NPPC. Inflation is tied to the salary scale assumption and a decrease will impact the liability/service cost as benefits won't increase as much.

(c) Propose two disclosure statements that should be added to the email, taking into consideration Actuarial Standards of Practice.

Commentary on Question:
Successful candidates provided two detailed disclosure statements to be added to the email. The solution below is a sample and not intended to be an exhaustive list of possible statements.

(1) Future actuarial measurements may differ significantly from the measurements presented here due to (but not limited to) such factors as the following:

a. Plan experience differing from that anticipated by the economic and/or demographic assumptions
b. Changes in economic or demographic assumptions
c. Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period)
d. Changes in plan provisions or applicable law

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

(2) In conducting the calculations, we have relied on personnel, plan design, and asset information supplied by ABC company as of the valuation date. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

5. **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

Sources:

DA-814-16: Accounting for Plan Splits & Mergers under US GAAP

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

DA-145-13: Acquiring a US Operation

DA 169–17: Mergers and Acquisitions: key considerations for retirement plan conversion

Commentary on Question:

Commentary is provided below each component.

Solution:

(a) Describe the U.S. accounting standard ASC 715 accounting methodology for each of the following transactions:

- (i) Plan merger of two plans sponsored by the same company
- (ii) Plan acquisition as a result of a company purchase
- (iii) Plan split into two plans sponsored by the same company
- (iv) Plan split in connection with a divestiture

Commentary on Question:

Successful candidates provided details regarding how ASC 715 dictates accounting work to be done for transactions in parts (ii), (iii), and (iv).

5. Continued

a. Plan Merger Accounting – Same company or controlled group
    i. The following elements would be combined for the plans:
        1. FVA
        2. PBO
        3. Unamortized gains/losses in AOCI
            a. In NPPC, use a combined amortization period based on new combined plan population
    ii. Unamortized PSC would not be combined but would continue to be amortized over the same periods as before the combination
    iii. Plan mergers do not require a remeasurement unless there is an associated plan change (which may trigger curtailment). Absent a remeasurement, the plans continue to be treated as separate until the end of the fiscal year
    iv. Employers are not precluded from performing an interim remeasurement (when not required) but they must be consistent in their accounting policy

b. Plan Merger Accounting – Business Combination
    i. The acquirer records the funded status of the plans it is taking on (both MVA and PBO)
    ii. No unamortized amounts are carried over in acquisition accounting
    iii. The PBO is measured at the acquisition date using the acquirer's assumptions and may differ from the seller's measurement

c. Plan Spin-off – Same company or controlled group
    i. The PBO is split into the two resulting plans based on who is moving
    ii. FVA is split into two resulting plans, based on 4044 allocation rules for qualified pension plans
    iii. Unamortized gains and losses are assigned to each plan in proportion to the PBO split
    iv. Unamortized PSC is ideally assigned based on specific identification, or if not practical, based on the PBO split
    v. The MRVA should be split though there is no specific guidance on how to (could use PBO or FVA)
    vi. Plan spinoffs do not require a remeasurement unless there is a settlement or curtailment.

d. Plan Spin-off - Divestiture
    i. The seller reflects a settlement reflecting a gain or loss
    ii. PBO less FVA transferred to the buyer plus/minus a pro rata share of the unrecognized gain/loss
    iii. Settlement effects are recognized when the settlement occurs, when all risk with respect to the PBO and asset g/l has been transferred to the buyer. This occurs on the official "spin-off date" which may be after the sale and typically before the final asset transfer

5. Continued

(b) Describe plan sponsor considerations when developing a communication strategy during a plan split.

Justify your response.

Commentary on Question:
Successful candidates described the considerations associated with developing a communication strategy and how participants should be informed.

- Make an assessment of the new total workforce to determine best ways to reach them. Consider mobility, work hours and locations.
- Ensure that communications don't occur during periods of the year that represent peak production times for various employee groups.
- Avoid communicating plan changes during holiday periods.
- Evaluate whether it will be more effective to send important information to employees' homes or to their work locations.
- Assess whether it will be more effective to hold employer-sponsored group meetings, use e-mail, or create bulletin boards to promote interest and enthusiasm around changes in the retirement plan.
- Determine whether it will be effective to engage key employee segments, such as department managers, to serve as advocates for explaining the plan changes to their staff.

6. 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.

Sources:

DA-802-13 Internal Revenue Code 409A and Non-Qualified Plan Design Considerations

DA-156-15 Moving from a DB Executive Retirement Plan to a DC Executive Plan Parts 1, 2 and 4

Commentary on Question:

Successful candidates described the relevant implications with sufficient detail and clearly contrasted between employer and employee perspectives.

Solution:

Describe the implications of terminating Plan B from the employee and employer perspectives.

<u>Employer Perspective:</u>

- Employer must fully distribute benefits to participants
- Employer must leave plan in place for 12 months, then distribute benefits between 13^{th} and 24^{th} months. Liquidity requirements and any accounting impacts must be addressed.
- Employer needs to consider how plan termination will impact employee morale & retention. (From employee perspective, may want to consider other more competitive employment.)

<u>Employee Perspective:</u>

- Amounts are fully and immediately taxable to the employee
- Participants will have lower tax-deferred retirement income since past service benefits are cashed out.

Other implications which received credit include but are not limited to:

- Termination cannot occur proximate to a downturn in employer's financial health
- Employer may be forced to terminate Plan A (restoration plan) as well, per 409A aggregation rules since it's a nonaccount balance plan like Plan B
- Employer cannot establish new NQDB plan for 3 years
- Plan termination requires participants to save/manage Plan B (and possibly Plan A) distribution for future retirement

7. 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:

(8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.

Sources:

Pension Risk Transfer_Evaluating Impact and Barriers for De Risking Strategies 16, 17, 20-27

DA-157-17: PWC IFRS Manual of Accounting (paragraphs11.1 – 11.10 (Intro), 11.53-11.63 (termination benefits),11.63-11.260 (Post-employment benefits)

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

DA-168-17: IFRS and US GAAP: Similarities and Differences

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe the reasons why the annuity buyout cost may be different from the accounting liability for the retired members.

Commentary on Question:
Successful candidates provided details of assumption differences beyond just noting the risk premium

- Insurers have access to more current mortality tables whereas accounting is more likely to use published tables
- Insurers consider investment fees in their assumptions
- Insurers consider administrative expenses in their assumptions
- Insurers require a risk premium since they want a profit

(b) Describe in words the impact of the annuity buyout on the 2017 Net Periodic Pension Cost and year-end 2017 Accumulated Other Comprehensive Income (AOCI) under U.S. accounting standard ASC 715.

No calculations are required.

Commentary on Question:
None

7. Continued

- An annuity buyout is a settlement if the amount settled is greater than the SC + IC in the fiscal year
- If the settlement premium is greater than the accounting liability settled them there is a settlement loss
- The gain/loss from settlement flows through unrecognized gain/loss first before determining settlement expense
- The settlement expense is calculated as a % of the remeasured gain/loss in the ratio of amount settled over pre-settlement PBO
- A mid-year remeasurement may be required which involves setting new assumptions
- If the group demographics have shifted after settlement, duration and therefore discount rate may change
- If the asset allocation had changed after settlement, the EROA assumption may change

(c) Compare the accounting treatment of the annuity buyout under international accounting standard IAS 19, Rev. 2011 and U.S. accounting standard ASC 715.

Commentary on Question:
None

- Under IAS 19, it is a settlement
- Under ASC 715, it is a settlement if the amount settled is greater than the SC + IC in the fiscal year
- Under both standards, the event is recognized at the date of settlement
- Under both standards, the gain/loss is the difference between the assets transferred and the liabilities recognized
- Under IAS 19, there is immediate recognition
- Under ASC 715, there is pro-rated recognition of unrecognized gain/loss
- Under IAS 19, the gain/loss is recognized as service cost
- Under ASC 715, the settlement expense is a separate line item

8. 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
- (e) Other alternative retirement 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

(3a) Identify risks face by retirees and the elderly.

(4a) Identify how plan features, temporary or permanent, can adversely affect the plans sponsor.

(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

8. **Continued**

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

Chapter 8, Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen, 11th Edition

Chapter 21, Retirement Plans - 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen, 11th Edition

SOA Cash Balance Study, Pension Forum, Dec. 1, 2000 (sections 1,2,3, plus Appendix A for background only)

Commentary on Question:
This question was designed to test how well candidates understood the features and risk sharing associated with both cash balance and 401(k) plans.

Commentary is provided below each component.

Solution:
(a) Critique how well the plan meets the following objectives:

(i) Attract young employees

(ii) Retain mid-career employees

(iii) Encourage employees to retire between ages 55 and 65

Commentary on Question:
To receive full credit, candidates needed to fully critique the provided plan design, noting how the various features could impact employee behavior (both pros and cons could be described). Credit was also awarded for answers not specifically noted below that were reasonably justified by candidates.

(i) How does it attract young employees?
Portable lump sum form of payment is attractive to mobile workforce

Relatively early accrual of benefits vs. traditional DB plans is attractive to younger employees

Benefit defined as account balance which is easily understood by younger employees

Shorter vesting period (3 years) then traditional DB plans is attractive to younger employees who are more mobile

8. Continued

(ii) How does it help retain mid-career employees
Plan design does very little to retain mid-career employees

Benefit accrual pattern is more favorable to younger, short service employees so mid-career employees are not incented much to stay

Older/longer service employees get less protection from pre and postretirement inflation than they would under traditional DB plans so mid-career employees are not incented to stay

Guaranteed 5% interest return in current market does not necessarily incent employees to stay since they can terminate employment after being vested and leave the money to earn guaranteed interest while they find work for an employer who provides better retirement income benefits

(iii) How does it incent employees to retire between ages 55 and 65
Does **not** have early retirement (or normal retirement) subsidies/incentives which would encourage employees to retire (like many traditional DB plans)

Immediate lump sum option at termination (or retirement) does not encourage employees to stay until at least 55

Availability to take benefit as a monthly annuity may help incent employees to retire between 55 and 65 (if benefit amount sufficient) since they will not have to manage drawdown of lump sum

(b) Describe how the following risks are shared between employees and Company XYZ in the cash balance plan:

(i) Longevity risk

(ii) Interest rate risk

Commentary on Question:
Successful candidates described longevity risk and interest rate risk and how employees and Company XYZ share the risks. Some candidates indicated the final lump sum value (not annuity payment) would be subject to interest rate risk; while true for traditional DB plans, this is not true in a cash balance plan that defines benefit as a lump sum.

8. **Continued**

(i) Longevity risk – risk of outliving one's benefits
Employee: has this risk if choose lump sum option
XYZ: retains risk for retirees who elect annuity payments

(ii) Interest rate risk – risk resulting from unpredictable costs of annuities due to interest rate swings
Employee: have this risk if choose to annuitize benefit (monthly benefit will depend on rates at time of annuitization)
XYZ: retain risk before participants start benefits (for accounting) and share risk with annuitants (future cost of payments).

(c) Compare and contrast the plan design features of Company XYZ's cash balance plan to the proposed 401(k) plan.

Commentary on Question:
Successful candidates provided several features that are similar and dissimilar between Company XYZ'x cash balance plan and the proposed 401(k) plan. The solution below is a sample and not intended to be an exhaustive list of possible points.

Compare:
Plans have same employer contribution component (3% of pay)

Both plans define benefit as an account balance

Neither plan requires employee contributions

Both plans provide lump sum option to participant

Similar vesting requirements: at least 3 year cliff or 6-year graded schedule for employer provided contributions to 401(k)

Contrast:

Participants receive PBGC protection with cash balance plan only

Annuities have to be provided as optional form of payment in CB plan (but not 401(k))

Employees are able to make contributions to 401(k) plan (not allowed in CB plan)

Employees are able to direct how contributions are invested in 401(k) plan, but not CB plan -> pre-retirement investment risk borne by different parties

8. Continued

CB is hybrid DB plan while 401(k) is DC plan

Employee loans/withdrawals may be allowed in 401(k), but not CB

Employer contributions to CB plan less predictable than to 401(k)

9. **Learning Objectives:**

1. The candidate will be able to analyze different types of registered/qualified 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.

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
- (e) Other alternative retirement 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

(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

(5m) Recommend an appropriate plan type and plan design features for providing retirement benefits and defend the recommendations.

9. **Continued**

Sources:
Fundamentals of Private Pensions, McGill, 9th Edition, Chapter 10

Retirement Plans – 401(k)s, IRAs and Other Deferred Compensation Approaches, Allen 11th Edition, Chapters 2 & 17

DA-113-16 "Multiemployer Plans"

Solution:
(a) Critique the plan provisions as compared to a traditional MEPP.

(i) Benefit Accrual Formula:
- Identify dollar per month times year of service and percent-of-contributions formulas are most common in MEPPs
- Contribution level negotiated in collective bargaining agreements
- Contributions made on behalf of workers are tracked and percentage (typically 0.5% to 2%) multiplied by accumulated contribution amount
- FAP – high 5 of 10 is common, consecutive years is more common

(ii) Normal:
- Normal Retirement – Usually 65, but can be earlier if industry working career is shorter.
- Oil industry career can be considered to have a shorter working career so age 62 NRD is OK.
- Max normal retirement date is 65 and 5 years of participation

(iii) Early and Unreduced Pension:
- Typical early retirement is 55 & 10 years of service or a minimum number of points (Age + Service)
- Age 50 with no service requirement is early for early retirement and can be costly
- 3% early retirement reduction is very generous, and thus costly
- Employees find subsidized early retirement benefits attractive (subsidized benefits are greater than actuarially reduced benefits). The subsidy can be used by employers to encourage earlier retirement.
- Unreduced pension is very generous and costly

9. **Continued**

(iv) Disability:

- High risk industry will have a higher rate of disability than other industries.
- Integration with Social Security is common.
- Common for disability insurance that pays to NRD to be bargained for outside of pension plan
- Continued accruals for disability is costly, but common if disability insurance provided for outside of pension plan
- Full accrued benefit without reduction for early commencement, often with a 10 or 15 year service requirement is common in MEPPs

(v) Death:

- Qualified preretirement survivor annuity [QPSA] is required by law once an employee becomes eligible for a retirement benefit
- Service requirement for death benefit can help keep costs down considering high risk industry.
- Unreduced benefit is very generous and not common
- Lump sum death benefits must satisfy the incidental death benefits requirement

(vi) Optional Forms:

- Lump sum option in MEPPs are not common
- This reduces assets and removes possibility of future asset returns.
- Lump sums are usually paid at a discount rate lower than the valuation rate, so the assets are reduced by a higher rate than the liability

- Actuarially equivalent J&S 50% would be less costly than unreduced J&S 50%
- [Single life annuity normal form of payment is most common with certain and life annuities as optional forms.

(b) Recommend four changes to the plan provisions to meet all objectives of the participating employers.

Justify your response.

Recommending a change in plan provision that would BOTH reduce costs and is a feature that is more common in MEPPs (than the feature provided)

- Must describe how the plan feature cuts cost (not just saying it cuts costs)
- Recommended change must be more common in MEPPs than the current feature

9. **Continued**

Examples:

Change benefit accrual formula to $ times years of service or % of contribution
- Reduces cost since plans are usually less generous
- More common accrual formulas for MEPPs

Change early retirement age to a later age with a service or points requirement
- Reduces costs since fewer payment years at a later age and fewer participants eligible to begin early
- Service or points requirement common in MEPPs

Add employee contributions
- Reduces costs since employees bear some of the cost
- Common in MEPPs

Change disability benefit to continued accruals to NRA and payable at NRA or fully accrued (not projected) benefit payable immediately
- Reduces costs since normal retirement benefit not paid until NRA/ accrued benefit is less than projected benefit
- Common disability benefits in MEPPs

Remove unreduced pension or increase service requirement
- Reduces costs since fewer participants eligible to begin early
- [Must point this out to get 2 points] Unreduced pension was common, but is becoming less common

Increase early retirement reduction per year prior to NRA
- Reduces subsidy provided for early retirement
- (not uncommon to MEPPs)

Remove lump sum option
- Reduces cost since lump sums reduce assets and remove possibility of future asset returns.
- Reduces cost since lump sums are usually paid at a discount rate lower than the valuation rate, so the assets are reduced by a higher rate than the liability
- LS feature not common in MEPPs

Change NRA to a later age, maybe with a service requirement
- Later NRA reduces payment period and thus costs
- 62 is not uncommon in MEPPs considering the industry

9. Continued

Remove unreduced J&S 50% death benefit or change to actuarially equivalent for all years of service

- Reduces cost since some form of reduction
- MEPPs generally provide a benefit greater than the QPSA

Change normal form of payment to life annuity

- Reduces cost since single life annuity less valuable form of payment than 10 year certain and life
- Removing certain period is not necessarily more common in MEPP

(c) Describe potential barriers to making plan changes to MEPPs.

Commentary on Question:
Successful candidates identified unions as a barrier and described the legal barriers. The solution below is a sample and not intended to be an exhaustive list of possible barriers.

- Regulatory barriers
  - Anti-cutback rules
  - Non-discrimination rules
  - Age discrimination rules
  - Limits on benefit improvements if plan less than 80% funded.
- Decreased benefits may reduce the ability to attract employees
- Changes can be subject to lawsuits if considered unfair
- Employer personnel policy change. NRA is the age beyond which the employees service theoretically becomes uneconomical (Reducing benefits may increase the retirement age of employees, resulting in high paid employees that may not be very productive)
- Plan administration may become burdensome

10. **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) Defined contribution and savings plans
(c) Hybrid Plans
(d) Retiree Health plans
(e) Other alternative retirement 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

(8a) Perform valuations for special purposes, including:

(i) Plant termination/windup
(ii) Accounting valuations
(iii) Open group valuations
(iv) Plan mergers, acquisitions and spinoffs

(8e) Advise plan sponsors on accounting costs and disclosures for their retirement plans.

Sources:

DA-815-17: Strategic Moves: The Exchange Option for Retirees

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

10. Continued

Commentary on Question:

The purpose of this question was to test the candidate's ability to determine the post-retirement benefit plan expense for the following year. Given a special event (such as a plan amendment), a candidate should be able to identify the correct event and accounting treatment, advise the plan sponsor on what the impacts are and re-calculate the annual post-retirement benefit plan expense factoring in the impacts of the event.

Solution:

(a) Explain why NOC would implement this change for its Medicare-eligible retirees.

- The retiree health exchanges offer expanded health care coverage for Medicare-eligible retirees, particularly with Medicare Part D plans that offer comprehensive prescription drug coverage.
- Exchanges offer competitive pricing and broad choice of options
- There is the opportunity for risk pooling. Risks are spread over a broad base of individuals purchasing coverage in the market.
- Health care coverage for younger retirees can be expensive compared to coverage for older beneficiaries, which is why NOC would focus on making this change for the Medicare-eligible group.
- Also, the current exchange market for younger retirees is volatile, and limited selection of policies.
- The plan change would result in predictable benefit program costs for NOC (e.g., with the flat-dollar HRA subsidy).

(b) Calculate the revised fiscal 2017 Net Periodic Benefit Cost under U.S. accounting standard ASC 715 reflecting the plan change.

Show all work.

<u>Calculate the expense for the 1st half of 2017</u>
= 108,792 / 2 (SC) + 120,274 / 2 (IC) + 2,682 / 2 (PSC) + 47,259 / 2 (G/L)
= 54,396 + 60,137 +1,341 + 23,630
= 139,504

<u>Roll-forward APBO to 7/1/2017</u>
= 3,128,517 + 108,792 / 2 (SC for 1/2 year) + 120,274 / 2 (IC for 1/2 year) – 30,000 (ben pmts for 1/2 year) = 3,213,050

<u>Remeasure APBO at 7/1/2017 using new discount rate (3.50%)</u>
= 3,213,050 + 97,000
= 3,310,050

10. **Continued**

Calculate impact of plan change
= (1,925,000) + 271,000
= (1,654,000). [This is a negative plan amendment, which creates a prior service credit.]

Remeasured APBO at 7/1/2017 reflecting plan change
= 3,310,050 – 1,654,000
= 1,656,050

Calculate Accumulated Other Comprehensive Income amounts at 7/1/2017
Unrecognized Prior Service Cost
= 6,590 – 1,341 – 1,654,000
= (1,648,751). [This is now a prior service credit.]

Unrecognized (Gain)/Loss
= 782,724 – 23,630 + 97,000
= 856,094

Calculate the expense for the 2^{nd} half of 2017
Service Cost
= (108,792 - 67,300 + 9,425) / 2
= 25,459

Interest Cost
= (1,656,050 x 0.035 + (108,792 – 67,300 + 9,425) x 0.035 – 0.5 x 0.035 x 60,000) / 2
= 58,694 / 2
= 29,347

Expected Return on Assets = 0, because there are no assets.

Amortization of Transition Obligation = 0

Amortization of Prior Service Cost
= (1,648,751) / 6.94 / 2
= (237,572) / 2
= (118,786)

Amortization of (Gain)/Loss
= (856,094 - 10% x 1,656,050) / 9.94 / 2
= 69,466 / 2
= 34,733

10. Continued

Total Expense for 2nd half of 2017
= 25,459 (SC) + 29,347 (IC) – 118,786 (Amort. PSC) + 34,733 (Amort. (G)/L)
= (29,247)

Total Expense for 2017 = 139,504 – 29,247 = 110,257

(c) Reconcile the change in Accumulated Other Comprehensive Income from December 31, 2016 to December 31, 2017 under ASC 715.

Accumulated Other Comprehensive Income (AOCI) includes Unrecognized Transition Obligation (UTO), Unrecognized Prior Service Cost (UPSC), and Unrecognized Gain/Loss (UGL). Since, UTO is $0 for NOC, this is being disregarded in the reconciliation below.

	UPSC	**UGL**	**AOCI**
At 12/31/2016	$6,590	$782,724	$789,314
Amortizations during fiscal 2017	= (1,341) + 118,786 = 117,445	= (23,630 + 34,733) = (58,363)	59,082
Plan amendment during fiscal 2017	(1,654,000)	N/A	(1,654,000)
Gains/losses arising during fiscal 2017	N/A	= 97,000 + x = 97,000 + 44,144 = 141,144	141,144
At 12/31/2017	($1,529,965)	$865,505	($664,460)

X = Gain/loss during 2nd half of 2017 (due to new year-end discount rate)
= Actual APBO$^{12/31/17}$ – Expected APBO$^{12/31/17}$
= 44,144

Actual APBO$^{12/31/17}$ = $1,725,000

Expected APBO$^{12/31/17}$
= $1,656,050 + $25,459 (SC) + $29,347 (IC) - $30,000 (BPs)
= $1,680,856

11. **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.

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

(3d) Propose ways in which retirement plans and retiree health plans can manage the range of risks faced by plan participants and retirees.

(4c) Recommend ways to mitigate the risks identified with a particular plan feature

(5a) Describe ways to identify and prioritize the sponsor's goals related to the design of the retirement plan.

(5c) Assess the feasibility of achieving the sponsor's goals for their retirement plan

(5f) Design retirement programs that manage retirement risk and are consistent with sponsor objectives.

(5g) Design retirement programs that promote employee behavior consistent with sponsor objectives.

11. Continued

Sources:
Managing Post-Retirement Risks – Guide to Retirement Planning

Next Evolution of DC Plan Design – Vernon

New Retirement Plan Designs for the 21st Century

OECD Roadmap for the Good Design of Defined Contribution Pension Plans

Solution:
(a) Identify the risks of the proposed plan design, including risks specific to highly-paid and lower-paid plan participants.

Commentary on Question:
Successful candidates identified risks in the context of the plan design. The solution below is a sample and not intended to be an exhaustive list of possible risks.

Highly-paid
Will hit $20,000 cap and this may prevent employer or employee contributions
Contribution cap may prevent reaching target replacement ratio

Lower-paid
May not take advantage of matching if fail to enroll or set contributions too low
No Social Security in Gevrey, so no savings mean no retirement income

Common risks
Retirement income adequacy
Voluntary participation may result in low or no savings for some participants
Matching rewards only eager participants
Delayed retirement for non-savers
Not investing properly (investment risk)
Interest risk / annuity conversion risk
Longevity risk

(b) Describe six different ways participants can mitigate risks identified in part (a) above.

Commentary on Question:
The solution below is a sample and not intended to be an exhaustive list of possible ways to mitigation risks.

11. **Continued**

Saving enough/delaying retirement:
Highly-paid: consider saving outside plan if $20,000 cap will generate insufficient funds
Join plan, do not delay participation; savings will compound over time
Make maximum voluntary contributions to achieve maximum match
Wait for interest rates go up before purchasing an annuity

Manage investment risk:
Consider target date fund
Select investment options in accordance with risk profile with proper allocation to equities
Select funds with lower fees
Consider index fund option
Delay retirement

Manage longevity risk:
Determine required contribution rate to achieve desired replacement ratio
Take advantage of retirement income solutions, if offered
Use online decision tools
Do not take loans or hardship withdrawals
Use plan adviser services and support, if offered

(c) Recommend changes to the plan design that would help participants maximize retirement income.

Justify your response.

Make plan mandatory so all employees participate

Add required employee contributions (e.g., 6 or 8%) and allow for voluntary above required contributions. Ensures basic coverage for all.

Increase employer matching to 100% of required contributions. Ensures adequate coverage

Increase maximum employee contribution cap not to overly limit highly paid and low contributions as a percent of salary.

Higher match on lower contribution to encourage participants to put more money in.

Provide for DC supplemental retirement plan (SRP) for excess contributions of highly-paid, to prevent capping of contributions.

Provide auto-enrollment and auto-escalation, to avoid apathy and ensure contributions reach the highest level.

Provide for fast vesting and/or eligibility, to ensure retirement savings accumulate at beginning of employment and entitlement to savings is rapidly achieved.

Include an option to annuitize.
Comments related to improvements in investments: e.g. default portfolio, efficient investment options, guaranteed return

12. Learning Objectives:

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.

Learning Outcomes:

(5c) Assess the feasibility of achieving the sponsor's goals for their retirement plan.

(5m) Recommend an appropriate plan type and plan design features for providing retirement benefits and defend the recommendations.

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

Sources:

DA-802-13 (Internal Revenue Code 409A and Non-Qualified Plan Design Considerations; on US & CA)

DA-156-15 (Moving from a DB Executive Retirement Plan to a DC Executive Retirement Plan Parts 1, 2 and 5 only)

DA-125-13 (Should Variable Pay Count Toward Benefits Calculations?)

Commentary on Question:

Commentary is provided below each component.

Solution:

(a) Identify benefits and vesting options for the plan that will achieve the objectives of the compensation philosophy.

Justify your response.

Commentary on Question:

Candidates generally did well identifying and justifying performance plans where benefit levels or vesting was tied to achieving company goals. Successful candidates also identified and provided justification for a holdback plan.

The company could institute a performance plan where benefits and/or vesting could be tied to company performance.

As an example, the annual allocation to the DC plan could be a percentage of pay based on sales or revenue growth relative to target. In addition, vesting of the DC contributions could be variable based on revenue growth relative to target.

12. Continued

Both of these options align rewards from the DC to company performance.

Alternatively, Company XYZ could institute a holdback plan where benefits are subject to verification of business results.

A holdback provision could be implemented such that the contributions to the plan would not vest for a period of X years so that revenue can be verified. This rewards long-term sustained performance rather than short term results that could be manipulated in the executives favour.

(b) Describe considerations of including or excluding variable pay from the plan benefit formula from the perspective of Company XYZ.

Commentary on Question:
The solution below is a sample and not intended to be an exhaustive list of possible considerations.

Considerations for excluding variable pay:

- Excluding variable pay could significantly reduce the cost of the plan
- Excluding variable pay could significantly reduce cost volatility
- Excluding variable pay would make providing retirement estimates/administering the plan easier
- Money could be spent on other programs that have a better internal ROI for the company

Considerations for including variable pay:

- Including variable pay would results in more adequate retirement benefits for their employees and better tie retirement income to gross working income
- Variable pay may be included in order to be competitive in Company XYZ's industry
- Including variable pay would increase the retirement benefit and may act as a retention tool for executives
- If variable pay is related to performance, including variable pay aligns with the company philosophy of tying rewards to performance

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.).

(9b) Explain and apply the Guides to Professional Conduct.

(9c) Explain and apply relevant qualification standards.

(9d) Demonstrate compliance with requirements regarding the actuary's responsibilities to the participants, plan sponsors, etc.

(9e) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.

(9f) Recognize situations and actions that violate or compromise Standards or the Guides to Professional Conduct.

Sources:

DA-140-15: ASOP 27, Selection of Economic Assumptions for Measuring Pension Obligations

SOA Code of Professional Conduct

Solution:

(a) Describe the precepts of the Society of Actuaries (SOA) Code of Professional Conduct that may have been violated by the actuary.

Commentary on Quesiton:

Successful candidates were able to identify the precepts that were violated and provided descriptions including the details of the rules.

<u>Professional Integrity</u>

PRECEPT 1. An Actuary shall **act honestly, with integrity and competence**, and in a manner to fulfill the profession's responsibility to the public and to uphold the reputation of the actuarial profession.

ANNOTATION 1–1. An Actuary shall perform Actuarial **Services with skill and care**.

13. **Continued**

ANNOTATION 1–2. An Actuary shall not provide Actuarial Services for any Principal if the Actuary has reason to believe that such services may be **used to violate or evade the Law** or in a manner that would be detrimental to the reputation of the actuarial profession.

ANNOTATION 1–4. An Actuary shall not engage in any professional conduct involving dishonesty, fraud, deceit, or misrepresentation or commit **any act that reflects adversely on the actuarial profession.**

Standards of Practice
PRECEPT 3. An Actuary shall ensure that Actuarial Services performed by or under the direction of the Actuary **satisfy applicable standards of practice**.

ANNOTATION 3–1. It is the professional responsibility of an Actuary to **observe applicable standards of practice** that have been promulgated by a Recognized Actuarial Organization for the jurisdictions in which the Actuary renders Actuarial Services, and to **keep current regarding changes in these standards.**

ANNOTATION 3–3. When an Actuary uses **procedures that depart materially** from those set forth in an applicable standard of practice, the Actuary must be **prepared to justify the use of such procedures.**

Communications and Disclosure
PRECEPT 4. An Actuary who issues an Actuarial Communication shall take appropriate steps to ensure that **the Actuarial Communication is clear and appropriate to the circumstances and its intended audience** and satisfies applicable standards of practice.

Control of Work Product
PRECEPT 8. An Actuary who performs Actuarial Services shall take reasonable steps to ensure that such **services are not used to mislead other parties.**

ANNOTATION 8–1. An Actuarial Communication prepared by an Actuary may be used by another party in a way that may influence the actions of a third party. The Actuary should **recognize the risks of misquotation, misinterpretation, or other misuse of the Actuarial Communication** and should therefore take reasonable steps to **present the Actuarial Communication clearly and fairly and to include, as appropriate, limitations on the distribution and utilization of the Actuarial Communication**

(b) Describe the disclosures that should be contained in a report with respect to economic assumptions based on the Actuarial Standards of Practice No 27.

13. Continued

Communications—Any actuarial report prepared to communicate the results of work subject to ASOP No. 27 should contain the following disclosures with respect to economic assumptions:

- **Assumptions Used:** The actuary should describe each significant assumption used in the measurement and whether the assumption represents an estimate of future experience, the actuary's observation of the estimates inherent in marketdata, or a combination thereof. Sufficient detail should be shown to permit another qualified actuary to assess the level and pattern of each assumption.

- **Rationale for Assumptions**: The actuary should disclose the information and analysis used in selecting each economic assumption that has a significant effect on the measurement. The disclosure may be brief but should be pertinent to the plan's circumstances.

- **Changes in Assumptions**: The actuary should disclose any changes in the economic assumptions from those previously used for the same type of measurement. The general effects of the changes should be disclosed in words or by numerical data, as appropriate. For assumptions that were not prescribed, the actuary should include an explanation of the information and analysis that led to the changes.

- **Changes in Circumstances**:
  Communication and disclosures regarding changes in circumstances known to the actuary that occur after the **measurement date** and that would affect economic assumptions selected as of the **measurement date**

(c) Describe the qualifying opinion statements the signing actuary should have included in the report for the discount rate assumption.

The discount rate assumption was set by Company XYZ's management. –OR- Company XYZ has selected the assumption, rather than myself, based on management's best estimate

The discount rate assumption significantly conflicts with what, in my professional judgment, would be reasonable for the purpose of the report.