DP-RU & DP-RC,A Complete Illustrative Solutions
November 2008

All solutions apply to both the United States and Canada unless otherwise specified

1. Canada

Learning Objectives:

Instructional Objective 2 – The candidate will understand how the regulatory environment affects plan design and understand how to apply relevant restrictions

Learning Outcomes (a) and (d)

- Explain and apply the regulatory limits placed on types of plans that can be offered
- Test for plan design restrictions intended to control the use of tax incentives

Instructional Objective 5 – The candidate will be able to apply / synthesize the various methods used to value a pension plan or retiree health plan for the purposes of the valuation.

Learning Outcome (b)

- Perform periodic valuations of ongoing plans, calculating normal cost and actuarial liability, using the variety of cost methods for budgeting, funding, accounting and measuring economic value.

This is an integrated and calculation question requiring the candidate to calculate minimum and maximum employer funding under the Pension Benefits Act and Income Tax Act, taking into consideration the additional constraints when a plan is a designated plan under the Income Tax Act. Candidates were also asked to describe the characteristics of designated plans.

1. Canada – continued

Solution:

(a)

Conditions causing a plan to be designated

- Defined Benefit registered plan that is not maintained by a collective bargaining agreement
- More than 50% of the pension adjustments for the whole plan are for either:
  - Connected members
  - Members earning more than 2.5 times the YMPE
- There can be an exemption for plans that were not Designated in the prior year and the 50% test is replaced with 60%
- If a plan is Designated in the prior year, it will remain Designated unless an application is made to the Minister of National Revenue
- Other possible exemptions if more than 9 members and
  - The benefit formula does not change by member
  - No member involvement in contribution amounts
  - No member control over investments
  - Surplus is not tracked individually

Consequences of a plan being deemed Designated

- Eligible contributions are determined on the basis of a Maximum Funding valuation
- Actuarial assumptions for Maximum Funding valuation are set by the Income Tax Act
- Some plan provision for purposes of the Maximum Funding valuation are set by the income Tax Act (such as indexing, normal form)
- Places an artificial cap on employer contributions. Can only contribute current service cost and deficiency on Maximum Funding basis

(b)

There is currently a going concern unfunded liability of $50,000 and a solvency deficiency of $150,000.

First, must calculate the contributions that would normally be required if the plan was not Designated:

Going Concern special payments

The going concern unfunded can be amortized over a maximum period of 15 years using the going concern discount rate of 6.5%. The amortization factor based on the above is 9.73, which gives minimum annual required going concern payments of $5,138.

1. Canada – (b) continued

Solvency special payments

The solvency deficiency must be amortized over a period not exceeding 5 years using the solvency discount rate of 4.5%.

First, we must determine the present value of 5 years of the going concern special payments established above also using the solvency discount rate of 4.5%:

The factor based on the above is 4.5 and the present value of 5 years of going concern special payments of $5,138 is $23,104.

This amount reduces the solvency deficiency to be amortized from $150,000 to $126,896.

The solvency deficiency of $126,896 must be amortized using the factor of 4.5 calculated above, which results in minimum required special payments of $28, 223 per annum.

Therefore, the total minimum contribution required if the plan were not designated would be:

$28,000 + $5,138 + $28,223 = $61,361

Maximum Funding valuation results

On a Maximum Funding basis, there is a surplus of $10,000 and the current service cost if $25,500. Therefore, on the maximum funding basis, there is no excess actuarial surplus and only the $25,500 service cost can be made according to the ITA. The Maximum Funding Basis restricts the required contribution from the going concern/solvency valuations. Since the required contribution on a going concern/solvency basis exceeds the permitted contribution on a Maximum Funding basis, the full Maximum Funding contribution becomes the required contribution. No special payments are allowed for 2008. The minimum contribution for 2008 is therefore the same as the maximum contribution allowed for 2008: $25,500.

1. Canada – continued

(c)

Asset projection

$$\text{Assets at January 1, 2009} = \text{Assets at } 1/1/09 \times (1+\text{return}) + \text{contributions} \times (1+\text{return}) - \text{payments} \times \left(1+\frac{\text{return}}{2}\right)$$

$$\text{Assets at January 1, 2009} = \$550,000 \times 0.97 + \$25,500 \times 0.97 - 0 = \$558,235$$

Going concern liability projection

$$\text{GC Liability at January 1, 2009} = \text{GC Liability at } 1/1/08 \times (1+\text{GC disc rate}) + \text{benefit payments} \times \left(1+\frac{\text{GC disc rate}}{2}\right) -$$

$$\text{GC Liability at January 1, 2009} = \$600,000 \times 1.065 + \$28,000 \times 1.065 - 0 = \$668,820$$

GC unfunded liability = $668,820 - $558,235 = $110,585

Solvency liability projection

Using the same formula as for the going concern liability but using the solvency discount rate:

$$\text{Solvency liability at January 1, 2009} = \$700,000 \times 1.045 + \$33,000 \times 1.045 - 0 = \$765,985$$

Solvency deficit = $765,985 - $558,235 = $207,750

Since the plan is no longer a Designated Plan, there is no need to calculate the Maximum Funding liability as at January 1, 2009.

Calculation of minimum contributions

Since the member is now retired, there is no current service cost for 2009.

1. Canada – (c) continued

Going concern special payments

A schedule was established at 1/1/08 to amortize the going concern unfunded liability ($5,138 per year). The schedule was established for 15 years and therefore there are 14 years remaining at 1/1/09. The present value of this schedule at 1/1/09 is as follows (using the going concern discount rate of 6.5% and a 14-year period)

PV of GC special payments = $5,138 × 9.33 = $47,932

Therefore there is a new going concern unfunded liability of

$110,585 – $47,932 = $62,653

to amortize over a period of 15 years using the going concern discount rate of 6.5%

$$\frac{\$62,653}{9.73} = \$6,439 \text{ per year}$$

The total minimum required going concern special payments for 2009 are:

$5,138 + $6,439 = $11,577

Solvency special payments

First we must take into account the present value of the special payment schedules already established. Going concern special payments of $11,577 are scheduled for more than the next 5 years, therefore the present value of the next 5 years of these payments using the solvency discount rate of 4.5% is:

$11,577 × 4.5 = $52,054

There was also a special payment schedule established at 1/1/08 ($28,223 per year). There are 4 years remaining in this schedule and therefore the present value at 1/1/09, using the solvency discount rate of 4.5% and a period of 4 years is"

$28,233 × 3.67 = $103,701

1. Canada – (c) continued

The new solvency deficiency to amortize at 1/1/09 is:

$207,750 - $52,054 - $103,701 = $51,995

This deficiency must be amortized over a period not exceeding 5 years using the solvency discount rate of 4.5%:

$$\frac{\$51,995}{4.5} = \$11,564$$

The total minimum solvency amortization payment for 2009 is:

$28,223 + $11,564 = $39,787

The total minimum contribution for 2009 is:

$39,787 + $11,577 = $51,364

The maximum contribution for 2009 is the maximum between the solvency deficiency and the going concern unfunded liability at that date: $207,750.

1. United States

Learning Objectives:

Instructional Objective 2 – The candidate will understand how the regulatory environment affects plan design and understand how to apply relevant restrictions

Learning Outcomes (a) and (b)

- Explain and apply the regulatory limits placed on types of plans that can be offered
- Explain and apply restrictions on plan design features to a proposed plan design

The well-prepared candidate should be able to describe the basic steps of the nondiscrimination tests in sufficient detail to provide evidence that the candidate understands the regulatory context as well as the mechanics. Further, the candidate should be able to offer several examples of design changes that could address a failing test result.

Solution:

(a)

ADP Test 1st step
Determine the actual deferral percentage for each eligible employee

- Divide the amount of contribution deferred at the employee's election by the amount of the employee's compensation
- Include any Qualified non-elective contributions (QNECs) or Qualified matching contributions (QMACs) to the numerator at the election of the employer
- Percentage determined for all eligible employees regardless of actual employee participation in 401(k) plan
- ADP for a nonparticipating but eligible employee equals zero
- Compensation used for denominator must meet any one of the four acceptable definitions of compensation found in the regulations The 4 safe harbor compensation definitions are
    - Traditional 415 Compensation
    - Modified 415 Compensation
    - W-2 wages
    - Wages subject to withholding

ADP Test 2nd step
Divide all eligible employees into two groups

- Highly compensated (HCE) and non highly compensated (NHCE)
- Average the actual deferral percentage for both groups separately

1. United States – (a) continued

ADP Test 3rd step
Check that average ADP for the HCE group does NOT exceed the AFP for the NHCE group by more than the allowable percentage

- Basic allowable percentage test
- ADP for HCEs cannot be more than 125 percent of the ADP for the NHCEs
- Alternative limitation percentage
- Allows the HCEs ADP to equal as much as two times the NHCEs provided in total not more than two percentage points higher
- Satisfy the ADP test so long as the actual HCE ADP is lower than the maximum of these percentage test results
- Give credit for table or numerical examples of allowable / permissible ADPs for HCEs (need at least two examples, show results of Basic Test, Alternative Limit, and Final Result)
- If ADP for NHCEs / Then ADP for HCEs may not exceed (Basic Test, Alternative Limit) / Final result of highest HCEs ADP

  1% / 1.25%, 2.0% / 2.0%
  2% / 2.50%, 4.0% / 4.0%
  5% / 6.25%, 7.0% / 7.0%
  10% / 12.5%, 12.0% / 12.5%
  12% / 15.0%, 14.0% / 15.0%

- ADP can be performed using actual deferral percentages of NHCEs from the prior year (but not a requirement)
- If employer elects to use current year percentages, election can only be changed in accordance with IRS regulations
- ADP can be performed excluding any NHCEs under age 21 and 1 year of service
- Only if plan separately passes 401(b) coverage tests for all participants in that age / service group
- Caveat: If any HCE is a participant under two or more Cash or Deferred Arrangements (CODAs) of the employer, all such CODAs will be treated as one for purposes of determining the employee's actual deferral percentage

ACP test – Actual Contribution Percentage test

- Same as ADP test steps except applies to after-tax contributions and employer matching contributions (do separately)

1. United States – continued

(b)

Do not have to perform nondiscrimination tests on elective contributions if satisfy one of two safe harbors (post 1999)

- Safe Harbor #1: Provide certain matching contributions to NHCEs
- Safe Harbor #2: Make a 3% of compensation contribution for all NHCEs, regardless of actual employee contribution to plan

Also, safe harbor on ACP testing for matching contributions (still required for after-tax employee contributions)

- Plan must provide for a safe harbor matching contribution and provide no match on contributions in excess of 6% of compensation
- This safe harbor matching contribution must be at least 100% of first 3% of pay contributed and 50% of next 2% of pay contributed (A)
- Other formulas qualify for safe harbor matching contribution if matching contribution is at least as large as (A) and the percent matched does not increase as the employee's contribution increases
    - Also HCEs rate of match cannot be greater than NHCEs rate of match

Three additional requirements to meet safe harbor requirements

- Annual notice to all eligible employees to be informed of opportunity to participate in CODA prior to beginning of year
- Matching contributions used to satisfy safe harbor must be fully vested
- Matching contributions used to satisfy safe harbor are subject to same distribution restrictions as QNECs and QMACs (can only be distributed on account of service separation, death, disability, or reaching age 59.5)

PPA added an additional safe harbor option for 401(k) plans that contain an automatic enrollment feature

- This safe harbor applies for both elective deferrals and matching contributions
- Deferrals must be at least 3% of compensation in the participant's first participation year, and subsequently increases by 1% each year until deferrals reach 6% in the fourth year and remain at least 6% or higher thereafter
- The automatic deduction cannot be greater than 10% and the percentages must be applied uniformly to all employees automatically enrolled
- For NHCEs, employer must also provide nonelective contributions equal to 3% of employee's compensation or higher
    - Matching rate for HCEs cannot exceed NHCEs matching rate

1. United States – (b) continued

- Employer contributions must be 100% vested within two years (rather than automatic as was previous safe harbor)
  - 401(k) plans with automatic enrollment feature can comply with nondiscriminating testing by performing tests, use previously available safe harbor, or "automatic enrollment" safe harbor

(c)

- Use prior year actual NHCE deferral percentages (known ahead of time)
- Design plan to be in automatic compliance
  - Example: Employer can make automatic 5% QNEC contribution for all employees
  - Employees given option of contribution up to 1% of pay
  - Plan will always satisfy ADP test since HCEs ADP will never exceed 125% basic test
- Design plan to encourage maximum participation from NHCEs
  - Provide higher levels of employer contributions for lower pay levels
  - Provide higher levels of employer contributions with reference to lower employee contribution rates
- Place limits on maximum deferrals or contributions
- Require minimum deferrals or contributions from all participating employees
- Include a plan provision allowing the employer to adjust prospective deferrals or after-tax contributions (upward or downward) if plan is in danger of failing the tests
- Employer can make additional necessary QNEC or QMAC contributions at end of plan year to satisfy the tests
- Determine contributions (that will pass tests) in advance of plan year and fix requirements on an irrevocable basis so plan is guaranteed to satisfy tests
- Three ways to address issue of excess contributions attributable to failure of ADP or ACP tests ("excess contribution" if fail ADP, "excess aggregate contribution" if fail ACP)
  - Employer can make additional contributions necessary to satisfy test requirements
  - Employer can recharacterize excess deferrals as after-tax contributions (if failed ADP test) – these deferrals will then be subject to ACP test requirements
  - Employer can refund excess contributions
  - Must first refund to HCEs who made highest dollar contribution amounts

2.

Learning Objectives:

5 – The candidate will be able to apply / synthesize the various methods used to value a pension plan or retiree health plan for the purposes of the valuation
5 – b. perform periodic valuations of ongoing plans, calculating normal costs and actuarial liability, using the variety of cost methods for budgeting, funding, accounting and measuring economic value
5 – c. Analyze and communicate the pattern of cost recognition that arises under a variety of funding and asset valuation methods
6 – The candidate will be able to analyze / synthesize the factors that go into selection of actuarial assumptions
6 – b. Adjust current assumptions, given past experience trends
6 – g. Describe and apply the building of economic assumptions
6 – i. Recommend appropriate assumptions for a particular type of valuation (e.g. ongoing, termination, etc.) and defend the selection
11 – The candidate will be able to apply standards of practice and the guides to professional conduct
11 – d. Explain and apply all of the applicable standards of practice related to valuing retirement obligations

The well-prepared candidate will be able to identify and describe the factors that apply to the assumptions required for retiree medical valuations that are in addition to those assumptions required for pension valuations. The question response should also identify the different impacts that other assumptions may have on a retiree welfare valuation as compared to a pension valuation. Further, the candidate should be able to calculate the effect of gains and losses related to claims payments in the projection of liabilities.

Solution:

(a)

Reflect change in per capita health claims rates over time for the various factors

- Medical Inflation
- Utilization
- Plan design
- Technology improvements
- Mix of services provided

Consider separate rates for major components. Components are:

- Hospital
- Prescription drugs
- Other medical services
- Medicare Integration
- Administrative expenses

2. **(a) continued**

Recent prescription drug cost trends have underlined importance of development of trend rates by service type

- Prescription drugs have become an increasing percentage of Medicare patients health care expenditures

The actuary should consider the following key components in setting the health care cost trend rate

- Inflation
- Medical Inflation
- Definition of covered charges
- Frequency of the services
- Leveraging
- Plan participation

Should not consider aging of the covered population when selecting the trend assumptions for projecting future costs

Consider setting separate pre- and post-65 rates

- Prescription drug components of costs for Medicare recipients increasing, suggesting an increase in trend rate post-65
- Trend should be within 115% of post-65 Medicare reimbursement rate

Trend rate should represent the following:

- Long term trends
- Underlying trends of the services provided by the plan

Give consideration to the relationship of health care expenditures to GDP

- Assumption regarding long term health care trends should account for sustainability of trend in relation to the total economy

Consider historical experience of the plan

- Key drivers of historical experience and how they may vary in the future
- Role of managed care in slowing recent historical experience

2. continued

(b)

Termination rates

- For employees expected to leave before retirement age
- Very dependent on type of workforce
- Often related to age and service
- Dependent on plan provisions
- Important that assumption closely represents actual terminations

Mortality rates

- Greatest impact after individual retires
- Should reflect actual expectations
- Postretirement mortality very critical (more so than for pensions) because health care costs generally increase with medical cost inflation
- Actuary should consider reflecting future mortality improvements

Disability incidence

- May or may not be significant
- Depends on whether disabled members are covered under active or retiree benefit plans
- Assumption should be different from pension plans since plans differ. Assumption should reflect plan design

Retirement incidence

- Retirement assumption is critical
- Support: Benefits under a retiree medical plan are generally not reduced for early commencement
- Actuary should select explicit age-related retirement rates. Single average retirement rate usually not appropriate.

2. continued

(c)

Expected APBO / ABO

$$= \left(\text{AL}\left[\text{January 1, 2008}\right] + \text{NC}\left[\text{January 1, 2008}\right]\right) \times (1+i) - \text{BenPmts}(2008) \times \left(1 + \frac{i}{2}\right)$$

Substitute numbers into equation
Substitute properly without writing equation
Final Answer of Expected APBO/ABO

$$\text{Final Answer of Expected APBO/ABO} = (1436641 + 52652) \times (1.0525) - (30000) \times \left(1 + \frac{0.0525}{2}\right)$$

$$= 1536693$$

Adjusted APBO / ABO = Expected APBO / ABO $\times \frac{(1+j)}{(1+i)}$

j = actual increase
i = expected increase
Substitute numbers into equation
Final Answers for Final APBO / ABO

$$= 1536693 \times \frac{1.12}{1.07}$$

$$= 1608501$$

Note: Final answer without supporting work will result in half the points and will demonstrate minimum adequate knowledge

3.

Learning Objectives:

10 – Relationship of plan investments with plan design and valuations
10 – b. Considerations in establishing benchmark portfolios

The well-prepared candidate will be able to describe in detail all aspects of quantitative investment manager evaluation using benchmarks.

Solution:

(a)

An acceptable benchmark – manager and the fund sponsor agree fairly represents the manager's investment process

An acceptable benchmark should possess the following qualities:

- Unambiguous – identities and weights of components clearly defined
- Investable – can actually invest in benchmark
- Measurable – return is readily calculable on a reasonably frequent basis
- Appropriate – consistent with manager's style / expertise
- Reflective of current investment options – Manager has current investment knowledge of instruments in benchmark
- Specified in advanced
- Owned – manager should take "ownership" and accountability for components and performance of benchmark

(b) **Absolute**

- Measure of fun versus absolute return (min. x% target, etc.)
- Not investable; Does not meet benchmark criteria

Manager Universes

- Example: Median manager or fund

Broad Market Indexes

- Examples: TSX, S&P 500, Russell 3000, Lehman Aggregate, US BIG EAFE
- Well recognized and widely available
- In many cases, meets benchmark criteria

Investment Style Indexes

- Large cap, small cap, value, growth
- Recognized, easily understood
- Must consider weightings of securities within index with regard to use as benchmark

3. **(b) continued**

Factor-Model Based

- Relates one or more systematic source of return to portfolio returns
- Usually utilizes a formula to estimate security or portfolio return.
  Example: $a_p + b_1 F_1 + b_2 F_2 + \ldots + \varepsilon_p$
- Advantage
  - Can help isolate manager's impact and style
- Disadvantages
  - Not always intuitive to sponsor, can be ambiguous
  - Can be expensive to develop

Returns Based

- Uses allocation algorithm to solve for combination of investment style indexes that most closely tracks actual portfolio
- Advantages
  - Generally easy-to-use
  - Meet most of benchmark criteria
- Disadvantage
  - Benchmark may reflect weightings / allocations are that unacceptable to manager

Custom Security Based

- Specific weighting of manager's research universe
- May be more suitable for measuring manager performance than published index
- Meets all benchmark criteria
- Can be expensive to construct and maintain

(c)

Steps in construction of custom benchmark

- Identify prominent aspects of manager's investment process
- Select securities consistent with investment process
- Develop a weighting scheme for benchmark securities (include a cash position)
- Review preliminary benchmark and modify as needed
- Rebalance the benchmark portfolio on predetermined schedule

3. **(c) continued**

Considerations for Benchmark Construction

- Cash positions as part of benchmark portfolio?
- Should benchmark portfolio be assessed transaction costs?
- Consider transaction costs as part of rebalancing of benchmark portfolio
- Monitor periods of significant cash flows to determine potential effect
- Costs associated with developing and maintaining custom benchmark portfolio
- Consider manager's objectives in conjunction with time horizon
- Multiple benchmarks for a firm
- Lack of standards to defining benchmarks
- Determine if anomalous market periods may affect components of benchmark portfolio

Tests for Evaluating Benchmark Quality

No single test can serve as definitive indicator of benchmark quality; combination of tests can serve in evaluation

- Systematic Biases
    - Measure historical beta of portfolio relative to benchmark. Should be near 1.0

- Tracking Error
    - Volatility of portfolio to good benchmark should be less than that of portfolio to general market index

- Risk Characteristics
    - Portfolio's exposure to systematic risks should be similar to benchmark

- Coverage
    - Coverage is the proportion of portfolio's market value contained in benchmark

- Turnover
    - Proportion of benchmark's market value for purchases during rebalancing
    - Should not be excessive

3. **(c) continued**

- Positive Active Positions
  - For specific security, difference of portfolio weighting to benchmark weighting
  - Manager should hold largely positive active positions for actively managed long-only accounts
  - Negative active positions may indicate the benchmark does not represent manager's investment approach

4. Canada

Learning Objectives:

Instructional Objective 8: The candidate will be able to evaluate the actuarial considerations in plan options and administrations

Learning Outcome (a):
The candidate will be able to assess the gain/loss from options offered, including:

- Phased retirement
- Postponed retirement
- Early retirement
- Option factors

This is a focus question, intended to have candidates show how retirement programs can be used by the employer as a tool to manage the workforce.

Solution:

(a)

Early retirement incentives encourage retirement before normal age

- Participants that work past early retirement age lose out on early retirement subsidy
- Participants who do not want to give up the early retirement subsidy but still want to work are forced to retire from their career job and take a bridge job

No late retirement incentives to postpone retirement past normal retirement age

- No actuarial late retirement subsidy
- No pension benefits accrual after a certain age
- Caveat: mandatory retirement has been abolished in several Canadian provinces already

Restrictions on Pension Distributions

The current Canadian regulatory environment does not fully support flexible retirement-work arrangements such as phased retirement

- Canada has regulations under the Income Tax Act (ITA) that restrict pension distributions
- The first (1575) is that benefit accruals in a defined benefit plan must end if the participant is receiving a pension from the plan or no pension may be paid if the individual is accruing a defined benefit pension

4. Canada – (a) continued

- The second regulation (1465) requires that lifetime pension payments from a defined benefit plan must be paid in equal periodic amounts
- Cap on lump sum amount that can be annually drawn during phased retirement period can create a large drop in cash flow

Plan formula definitions for traditional final-average-pay plans (Final average pay formula & service calculation) do not accommodate for flexible retirement-work arrangements

- Averaging the final compensation amounts for determining benefits penalizes the phased retiree for continuing to work since part-time pay during phased retirement would be used in determining final average pay
- Using the average of the highest consecutive compensation amounts throughout the entire service period penalizes the participant since he/she does not benefit from any increases in the rate of pay during phrased retirement
- Plans commonly use service cap

(b)

Remove or reduce early retirement incentives (incentives for early labor market exit)

- Require a full actuarial reduction for early retirement election
- Increase the early retirement age without reduction at 62 (at NOC)
- Increase the current early retirement reduction of 3% (at NOC)

Introduce late retirement incentives to encourage workers to delay retirement

- Provide an actuarial increase for participants delaying retirement and commencement of retirement benefits
- Permit pension benefits accrual after a certain working age
- Allow flexibility of reduced work schedule such as a phased retirement program without negative impact to retirement benefits
- Take advantage of the eligible period of reduced pay rules under the ITA to allow the member to scale back on time worked but continue to accrue pension as if still working full-time

4. Canada – (b) continued

Clarify or modify plan formula definitions so financial impact of flexible retirement work arrangements is actuarially neutral

- Clarify or modify the definition of final average earnings, such as annualizing pay during phased retirement
- Average the highest compensation amounts and not the last years of pay
- Use a partial year in divisor of final average pay fraction
- Remove service cap

Capitalize on the early retirement subsidy while allowing employee to remain in workforce past ERA without changing regulations

- Allow the member to retire and draw the early retirement pension in full, cease pension accrual and pay full salary
- Allow the member to retire and draw the early retirement pension in full and pay extra salary or other benefits in lieu of further pension accruals
- Allow the employee to retire and draw the early retirement pension in full, while providing for continuing pension accruals through a defined contribution provision or through an RRSP
- Take advantage of the eligible period of reduced pay rules under the ITA to allow the member to scale back on time worked but continue to accrue pension as if still working full time

4. United States

Learning Objectives

Instructional Objective 8 – The candidate will be able to evaluate the actuarial considerations in plan options and administrations

Learning Outcome (a):
The candidate will be able to assess the gain/loss from options offered, including:

- Phased retirement
- Postponed retirement
- Early retirement
- Option factors

This is a focus question, intended to have candidates show how retirement programs can be used by the employer as a tool to manage the workforce.

Solution:

(a)

Early retirement incentives encourage retirement before normal age

- Participants that work past early retirement age lose out on early retirement subsidy
- Participants who do not want to give up the early retirement subsidy but still want to work are forced to retire from their career job and take a bridge job

No late retirement incentives to postpone retirement past normal retirement age

- No actuarial late retirement subsidy
- No pension benefits accrual after a certain age

Traditional defined benefit retiree health benefit plans with generous eligibility provisions & generous benefits

- Encourages retirement once eligible since the maximum benefit has already been achieved if provide full benefits based on service regardless of age

Restrictions on Pension Distributions

- The current U.S. / Canadian regulatory environment do not fully support flexible retirement-work arrangements such as phased retirement
- Before PPA, under U.S. law, a defined benefit plan could not make in-service pension distributions to employees who attain age 62 even if the employee has not yet separated from service

4. **United States – (a) continued**

Plan formula definitions for traditional final-average-pay plans (Final average pay formula & service calculation) do not accommodate for flexible retirement-work arrangements

- Averaging the final compensation amounts for determining benefits penalizes the phased retiree for continuing to work since part-time pay during phased retirement would be used in determining final average pay
- Using the average of the highest consecutive compensation amounts throughout the entire service period penalizes the participant since he/she does not benefit from any increases in the rate of pay during phrased retirement
- Plans commonly use service cap

(b)

Remove or reduce early retirement incentives (incentives for early labor market exit)

- Require a full actuarial reduction for early retirement election
- Increase the early retirement age without reduction of 62 (at NOC)
- Increase the current early retirement reduction of 3% (at NOC)

Introduce late retirement incentives to encourage workers to delay retirement

- Provide an actuarial increase for participants delaying retirement and commencement of retirement benefits
- Allow flexibility of reduced work schedule such as a phased retirement program without negative impact to retirement benefits

Implement 2-5 year Deferred/Delayed Retirement Option Program equivalent – employee starts pension but remains working

- At full retirement ptp receives annuity earned at start of DROP period and lump sum equal to accumulated annuity payments during period
- Purpose is to keep workers who have attained eligibility for unreduced pensions to remain in workforce for additional period of time
- Allow unlimited DROP period to retain employees longer
- Provide higher interest credits or COLAs for benefits accumulated in DROP period
- Allow pension service to accrue again & interest credits on DROP account to continue after DROP period if employee continues working
- If remain in workforce for certain years after DROP period over, can get final average earnings recalculated – incentive to remain working those years after DROP period

4. United States – (b) continued

Modify DB retiree health plan eligibility provisions & benefit provisions

- Apply early retirement factors to eligibility provisions
- Apply service-related contributions / benefit levels
- Employee and employer costs vary depending on employee's length of service at retirement
- Higher employee costs if one has shorter service
- Apply benefit level or contribution caps on retiree health benefits
- Increase cost of retiree health plan for retirees, will keep employees actively working to remain in cheaper active medical plan

Implement a DC model retiree health plan such as retiree health accounts (RHA)

- RHA's provide incentives for workers to continue working either part time or full time after attaining eligibility for retirement
- Working longer results in additional contributions to one's health account (build up account)
- Staying in the active plan means the employee is not reducing / using one's health account to cover medical expenses sooner

Clarify or modify plan formula definitions so financial impact of flexible retirement work arrangements is actuarially neutral

- Clarify or modify the definition of final average earnings, such as annualizing pay during phased retirement
- Average the highest compensation amounts and not the last years of pay
- Use a partial year in divisor of final average pay fraction
- Remove service cap
- Modify service calculation so employee under flexible retirement work arrangement still receives partial service credit for part-time status rather than follow the normal plan formula rules (ex. 1,000 hour rule) – pro rate service

4. United States – (c) continued

(c) Under current U.S. law, a defined benefit plan can not make in-service pension distributions prior to the NRA as defined in the plan

- But workers are more likely to phase into retirement before NRA and then extend their working career after NRA
- Allowing pre-retirement distributions to active pre-NRA employees could result in disqualification of the defined benefit plan
- Caveat: PPA now allows Qualified pension plans (U.S.) to provide distributions to employees who attain age 62 even if the employee has not yet separated from the service

Presence of Early Retirement Subsidies – Participants must forfeit the early retirement subsidy if they enter the program since DB plans are not currently allowed to pay partial pension benefits during phased retirement

Retirement Income Adequacy – how a phased retirement program affects a worker's retirement income adequacy is crucial in determining how effective the program will be

- Employees might use phased retirement to withdraw from full-time employment earlier and then retire at same time had program not been in place – opposite of program purpose

Nondiscrimination Issues – An employer offering a phased retirement plan would have to make it currently and effectively available on a nondiscriminatory basis

- Likely that employees that would desire to participate in a phased retirement program would be considered HCEs, which may pose a non-discrimination testing problem

Social Security requires that benefits can not be paid to a worker earning regular wages in their regular employment before SSNRA

- Implemented an earnings test applying to recipients below their SSNRA – Any excess earnings over this threshold would receive reduced Social Security benefits
- Under this earnings test, almost no phased retiree under their SSNRA age would satisfy this earnings test standard

Integration with Benefit Limitations compliance for DB plans

- Lack of clarity regarding application of limits when a portion of benefit commences upon phased retirement and remainder commences upon full retirement
- Could end up reducing the ultimate retirement benefit and give the participant little additional benefit for the phased retirement period, which would give an employee less incentive to enter the program

5. Canada

Learning Objectives:

Instructional Objective 1 – The candidate will be able to analyze different types of registered/qualified defined benefit and defined contribution plans, as well as retiree health plans.

Learning Outcome (d): Given a plan type, explain the relevance and range of plan features including the following:

1. Plan eligibility
2. Benefit eligibility requirements, accrual, vesting and phased retirement
3. Payment options and associated adjustments to the amount of benefit
4. Ancillary benefits
5. Benefit subsidies and their value, vested or non-vested
6. Participant investment options
7. Required and optional employee contributions
8. Phased retirement

Learning Outcomes (a), (b), and (c):

- Explain and apply the regulatory limits placed on types of plans that can be offered
- Explain and apply restrictions on plan design features to a proposed plan design
- Explain and test limits on plan designs and features that protect participant rights

This is an integrated question. In Part (a), candidates show how far a plan can be improved up to Income tax limits. In Part (b), candidates show how permissible cost-cutting measures under the Pension Benefits Act.

Solution:

(a)

Bridge / Temporary Pension

- A pension payable to age 65
- Encourages early retirement
- Does not impact PA calculation

5. Canada – (a) continued

ITA bridge limit is max CPP + max OAS

- Unreduced at 60 & 10
- 0.25% per month reduction prior to age 60
- Additional reduction if < 10 years of service, pro-rata service / 10
- Max CPP $= \text{CPP} \times \min\left(1, \text{FAE2}/\text{FAYMPE3}\right)$
- Bridge may have indexing, survivor ben, guarantee
- Additional bridge possible if reduced lifetime ben (level-income option), in this case bridge cap is 40% YMPE

ITA combined limit also can limit bridge

- Combined limit = DB dollar limit × svc + 25% × FAYMPE3 × svc / 35
- So max bridge = combined limit – pre-65 lifetime pension
- No reduction prior to 60
- Restricts highly paid members and low-income short service employees

Early Retirement Subsidy

- Reduction more favorable than actuarial equivalent
- Encourages early retirement
- Does not impact PA calculation
- Cannot be more generous than 3% before age 60, 80pts, 30 svc
- Earliest unreduced is 55, 75, 25 for public safety occupations
- Max early ret is min(2%HAE, DB dollar) × 3% from 60, 80, 30

Indexing

- Does not impact PA calculation
- Can use 1 of 4 possible approaches
  - A fixed annual increase of 4% per annum or less
  - Adjustments to reflect changes in CPI
  - Adjustments based on "excess earnings" – reference to pool of assets
  - Combination of the above
- Additional rule if use 3 or 4, cumulative inc cannot exceed PV under 1 or 2
- Alternative may use Ad Hoc, based on CPI only

5. Canada – (a) continued

Post-retirement Death Benefits

- Does not impact PA calculation
- Incr. Spouse/benef protection, without reducing lifetime pension
- Benefits in form of single life annuity can be guaranteed 15 years
- Max unreduced surviving spouse pension is $66\frac{2}{3}\%$ guar 5 years
- More generous JS must be actuarial equivalent
- Survivor benefits can continue to dependent to age 18 (later if student)

Eligibility

- Reducing period until eligible to join plan improves attractiveness for employees
- Minimum eligibility period is immediate

Averaging Period for Earnings

- Does not impact PA calculation

Pre-retirement death benefits

- Does not impact PA calculation
- May be payable to spouse or dependant, as pension or lump sum
- Survivor pensions must be less than member's projected ret ben
- Amount to any one individual must be less than $66\frac{2}{3}\%$ of proj ret ben
- Proj ret ben is max (accrued pension, min[proj to 65 no SS, 150% of YMPE])

Flexible Pension Plan

- Voluntary employee contribution used to purchase ancillary benefits on retirement

(b)

Bridge/Temporary Pension

- Remove or reduce
- *Prospectively only*

Early Retirement Subsidy

- Make less generous
- Cannot be less generous than actuarial equivalent
- *Can be done retrospectively, if employee has not yet met eligibility*

5. Canada – (b) continued

Indexing

- Remove or reduce future indexing grant, provide on ad-hoc basis in future
- *Previously provided increases granted cannot be taken back*
- *Could exclude liability for future indexing from solvency valuation, lower SP*

Employee Contributions

- Required contributions introduced as cost sharing
- ITA limit of lesser of [9% of comp, $1000 + 70% × PA]
- *Prospective change only*

Post-retirement death benefits

- No subsidized JS 60% for married members, make life only regardless of marital status

Eligibility

- Establish a waiting period before eligible to join plan
- Full time – 24 months, Part time – max of 24 months and earned 35% of YMPE in two consecutive calendar years or worked 700 hours in 2 consecutive years
- Prospectively only, would apply to new hires after date of amendment

Averaging Period for Earnings (not relevant to hourly plan)

- Increasing averaging period decreases cost, in most cases
- No limit, averaging over all service is effectively CAE

Flexible Pension Plan

- Remove bells and whistles and make employees pay for them

Reduce Benefit Level

- *Prospectively only*
- *Cannot reduce amount or commuted value of accrued pension benefit*
- *Could consider converting to DC for future service*

Terminate the Plan

- *Could freeze future accruals but not wind-up*
- *Could wind-up the plan, if cost advantageous to do so, depends on settlement rates*
- Wind-up may trigger grow-in, which actually increases cost

5. United States & 6. Canada

Learning Objectives:

Instructional Objective 2 – The candidate will understand how the regulatory environment affects plan design and understand how to apply relevant restrictions.
Learning outcome (d) – Understand plan design restrictions intended to control the use of tax incentives
Instructional Objective 9 – The candidate will be able to understand principles and rationale behind regulation. Material on U.S. and Canada.

The candidate should demonstrative a thorough understanding of the role of tax policy in retirement income adequacy.

Solution:

(a)

Allow employer contributions to the plan to be tax deductible

- Does not distort choice of employers between paying current salaries and future retirement benefits
- Alternatively, could allow only a portion of the contribution to be tax deductible

Have no tax on the investment income on the fund / account

- No tax on dividends, capital gains, and interest payments received by the plan
- Alternatively, could still tax the income but to a lesser degree

Allow employee contributions to the plan to be tax deductible

- Encourages employees to put some of their own salary toward their retirement

Provide tax shelter for return of DB surplus pension assets to the employer

- Could allow excess assets to be returned to employer without terminating the plans
- Encourages employers to sponsor plans without risk of not being able to get their contributions back

(b)

Do not consider employer contributions to the plan to be income to employees

- Do not tax retirement benefit until it is distributed to employees
- Reduces the tax burden for employees

5. & 6. **United States & Canada, respectively – (b) continued**

Allow employee contributions to the plan to be tax deductible

- Encourages employees to put some of their own salary toward their retirement

Require minimum standards for plan participation, vesting or portability

- Generates retirement benefits for more employees
- Helps employees keep retirement benefits when switching jobs

Introduce personal savings plans

- Pre-tax employee deferrals to the plans
- No tax on investment income
- No tax on the benefit until distributed to employees
- Could allow carry forward of unused contributions to future years

Have age-graded (tiered) tax rates on retirement benefits to encourage delayed retirement

- The later employees retire, the lower the tax rate
- Entices employees to work longer, thereby accruing a larger benefit

Give preferential tax treatment of lump-sum payments over annuities (Germany/Japan)

Have maximum tax deductible contributions increase with age (UK)

- Older workers more aware of their retirement needs and more motivated to save for retirement

(c)

Set a limit on the amount an employer can deduct (maximum deductible contribution)

- Could be fixed dollar limit and/or percentage of payroll
- Could be based on under/overfunded position of the plan
- Mandate actuarial assumptions used to determine annual contribution
- Could integrate with DC plan (combined limit)

Set a limit on the amount an employee can defer in PSP (deferral limit)

- Limits the tax preference received by high-income workers
- Could be fixed dollar limit and/or percentage of pay
- Could integrate with DB employee contribution or DC deferral limits (Canada)

Set a limit on the amount an employee can contribute to a DB plan

- Fixed dollar amount and/or percentage of pay
- Could integrate with DC or PSP deferral limits

5. & 6. United States & Canada, respectively – (c) continued

Limit the amount that the DB formula can provide to an employee

- Benefit maximum(fixed dollar or percentage of pay)
- Maximum recognized pay
- Introduce nondiscrimination requirements to limit the benefits paid to higher paid employees

Allow lump sum distributions

- Government receives tax on full value of retirement benefit immediately at retirement, rather than spread out over years of annuity payments

Do not allow lump sums from DB or DC plans to be rolled over

- Retirees can not defer taxation
- Government receives tax earlier

Levy extra taxes on excess pension assets (DB plans)

Tax pension fund investment income or assets but at a lower rate

6. United States & 7. Canada

Learning Objectives:

Instructional Objective 10 – The candidate will be able to analyze the relationship of plan investments with plan design and valuations

The well-prepared candidate will be able to describe the various methods of liability-driven investing (LDI) and the impact of funded status on an LDI strategy.

Solution:

(a)

Dedication Definition

- Cash flow matching procedure / search for optimal combo of bonds that will produce cash flows over a period to meet a benefit payout schedule
- Attractive strategy for mature (or most retired) plan / attractive for plan where ben payout schedule already determined for a certain horizon
- Most expensive since give up a lot of return
- Eliminate all risks if perfect cash flow matching
- Can minimize administrative complexity

Reinvestment risk due to reinvestment of periodic coupons

Immunization Definition

- Duration matching procedure
- Portfolio s.t.: MV of bonds = PV of subset of liability
- Intention: Even if Interest rates change, MV bonds s/b $\Rightarrow$ PV of subset liabilities
- Define duration: measure of (portfolio's) interest rate or price sensitivity
- Allows for flexible portfolio building
- Attractive for plan where bulk of liabilities / benefits are not currently in-pay
- Frequent portfolio rebalancing needed
- No protection against a non-parallel shift in the yield curve / convexity issue
- More complex administration
- If assumption is immunization model are violated, plan sponsor could experience a shortfall

6. & 7. United States & Canada, respectively – (a) continued

Horizon Matching Definition

- Combo of dedication and immunization procedures
- Split liabilities into 2 portions: 1st portion 3-5 year liabilities; 2nd portion is balance of liabilities
- Handle 1st portion of liabs through dedication
- Handle 2nd portion of liabs through immunization
- No protection against a non-parallel shift in the yield curve for layer years / convexity issue
- Mitigates the effects of failing to satisfy immunization assumptions
- Disadvantage is that it will give up some of the cost savings of a full immunization approach

(b)

Surplus = MV – (Liab_In-pay + Liab_N-In-pay)
Duration (liab) = (-d(liab)/di)/liab and Duration(mv) = (-d(mv)/di)/mv
Derivation: Duration(MV) = [(liab × dur)_in-pay + (liab × dur)_N-in-pay)/MV
Calc: Dur_sal = [400(8) + 400(15) +100(20)]/(950)
Dur_sal = 11.79
Calc: Dur_hry = [300(10) + 300(18) + 100(20)]/(600)
Dur_hry = 17.33

(c)

HRLY Plan

- Recommend NO
- Plan is NOT in a surplus position
- Wait until the plan achieves a surplus position and then revisit the possibility of an immunization strategy

SAL Plan

- Recommend Yes
- The plan is in a surplus position
- Protection of surplus if plan is terminated in short term
- Allows for a flexible portfolio
- May not be able to meet return objective in short time frame and thus may violate immunization assumption
- Higher administrative complexity and cost due to rebalancing needs

7. United States & 8. Canada

Learning Objectives

Instructional Objective 4 – The candidate will understand alternative plan types that occur internationally

The candidate should demonstrate a good understanding of labor market plans by describing the difference between labor market plans and other types of plans and differences among labor market plans. Part (b) asked the candidate to identify features that may differ among labor market plans by using three Countries as examples. A marginally passing candidate may not have been able to identify each feature with the correct country plan while a high-performing candidate would have been able to highlight the major differences between the types of plans by country.

Solution:

(a)

A Labor Market Plan (LMP) is a retirement plan, member of which is mandatory for members of the employed workforce or some definable segment of the workforce

- LMPs have in common that a company employing someone in the covered group is obliged to provide a retirement benefit in conformity with an agreement negotiated at the industry or national level
- A common feature of LMPs is the prevalence of modest salary caps
- In some countries, it is difficult to determine whether a national program should be characterized as a labor market plan or a system of privatized social security

To determine the main features that distinguish an LMP from a social insurance arrangement or private pension arrangement, we have to consider the following

- To what extent should retirement income be privatized: LMPs are private plans
- Should the private pensions be voluntary or mandatory: LMPs are mandatory
    - In some countries, employers can opt out if they offer similar private coverage
    - Social security is mandatory
    - Private plans are voluntary

7. & 8. United States & Canada, respectively – (a) continued

- Government encouragement
  - Governments generally encourage private pension plans
  - In New Zealand, no tax preference or subsidy provided provided for pensions
  - In Australia, the government mandates LMPs
- Who bears the inherent financial risks in pension plans
  - There are both DB and DC LMPs. In DB plans the employer (or the insurer) bears most of the risk; in DC plans, the employee bears most of the risk
- Mandatory insurance for pension benefits
  - In some countries, the government requires that the (DB) pension plans are insured. In Sweden, the ITP is insured.
- Who pays for pension plans (employer, employees, both): Most LMPs are employer paid
- Advance funding
  - DC plans are fully funded
  - In most cases, advance funding required for DB private plans
- Coverage
  - Social security covers all workers
  - LMPs cover a segment of the working force
  - Most other private pension plans cover employees of a company or a group of companies in the same industry
- Portability
  - Full portability for social security
  - LMPs preserve the retirement income when changing jobs in the workforce segment covered by the same LMP
  - Single employer DB private pension plans may have reduced portability

(b)

LMPs in Australia have the following characteristics

- Unions pushed for increased coverage of their members and better vesting of employer contributions

7. & 8. United States & Canada, respectively – (b) continued

- Federal government could not legislate nationwide pensions but could legislate employment terms as part of the so called "industrial awards". As a result, initial benefits from LMPs were defined by reference to a wage rise (typically 3%) which could be taken only in the form of a retirement (superannuation) benefit available from retirement age. This is called the "industrial award superannuation contribution". Later the government switched from the industrial award system to the tax legislation to achieve its aims of mandatory employer superannuation contributions. By doing this the government is reducing the pressure on the means-tested social security benefits. As a result, the Australian LMP plans are defined contribution type plans
- The employer contribution is mandated by the legislation. Initially was 3%, then increased to 6% in 1997 and 9% in 2002.
- Other LMP plans were set up with input from both employers and unions by way of an industrial body
- The predominant form of benefit is a lump sum. This has spawned a large industry of financial advisors to assist retirees on how to best invest their lump sum to produce a suitable stream of retirement income.
- Federal Government focused on compulsory superannuation. Set up boards of trustees to run the superannuation plans. Tax levy assessed on employers who fail to make minimum mandated superannuation contributions.

LMPs in Sweden have the following characteristics:

- LMPs in Sweden are the result of negotiations between the Swedish Employers Confederation (SAF) and unions.
- Separate plans are negotiated for salaried employees (ITP) and blue collar employees (STP)
- The LMP plans are DB type plans integrated with social security
- The ITP plan has a small DC component
- The STP is funded through a global contribution rate charged to all participant companies. Thus there is a full cross-subsidy between companies
- The ITP plan may be funded through an insurance contract with a specific mutual insurance company (SPP) created by organizations representing the employers and the major unions for this purpose. There is a degree of cross-subsidy in the calculation of the premiums.

7. & 8. United States & Canada, respectively – (b) continued

- Under the ITP there is an alternative funding method: an insured book reserve approach where the employer may create a balance sheet reserve equivalent to the SPP premium and will be responsible to pay the benefits as they fall due. Under this approach, the employer is required to take out credit insurance with another mutual insurance company (FPG) created by organizations representing the employers and the major unions for this purpose. The credit insurance is required to protect against bankruptcy.
- The benefits are provided in the form of an annual pension

LMPs in the Netherlands have the following characteristics:

- Called Industrial Pension Funds
- Pension plans perceived as an important part of the conditions of employment
- Legal requirement that management of pension funds be structured on the basis of parity, so unions are directly involved in pension plan implementation
- Apportionment of pension costs over the entire industry in the form of a global contribution rate. Contribution rate not dependent on the size of the company or the demographic composition of its staff. Employee does not suffer a loss of pension with a job change.
- Over half are average pay plans.
- Companies can be granted exemption from participation in an Industrial Pension Fund by providing at least equivalent benefits and by having provided them for at least 1.5 years prior to setting up an Industrial Pension Fund.
- Similarities and differences between the LMPs in these three countries
- Strong influence of unions in all three countries
- Benefits provided in the form of a pension in the Netherlands and Sweden, predominantly a lump sum in Australia
- In the Netherlands and Sweden, separate plans for salaried and nonsalaried employees
- In the Netherlands and Sweden, alternative funding mechanisms are allowed
- In Sweden, benefits are integrated with social security
- LMPs are DC plans in Australia, DB in the Netherlands and Sweden
- LMPs mandatory in Australia, voluntary in Sweden, voluntary in Netherlands as long as employer provides at least equivalent benefits
- No insurance for benefits in Australia, Sweden, sometimes in the Netherlands
- No funding in Australia (because plans are DC), advance funding required in Sweden
- Short vesting requirements in Australia and the Netherlands

8. United States

Learning Objectives

Instructional Objective 3 – The candidate will be able to analyze plans designed for executives or the highly paid

The candidate should be able to summarize the 409A regulations and apply the regulations to NOC's nonqualified retirement plan including recognizing the need to modification of the optional form election.

Solution:

Deferral Elections

- Timing
  - Salary Deferrals prior to year services are performed
  - Bonus Deferrals at least 6 months prior to end of period when services are performed
- Form of Payment
  - Election made at time deferral election is made
  - Redeferral rule allows changed with waiting period
    - Redeferral rule means waiting 12 months from initial election
    - Redeferral period must be 5 years beyond initial payment date and 1 year in advance
    - Redeferral period of 5 years waived for death, disability or unforeseen emergency
- Cannot track qualified plan election

Distributions

- Triggers
  - Separation from service
  - Key employees must defer payment for 6 months
  - Disability
  - Death
  - Change in control (narrowly defined)
  - Hardship / Accelerated Distributions permitted
    - Small distributions (de minimis)
    - Payment of certain FICA taxes
    - Domestic Relations Order
    - IRC Required Divestiture
    - Unforeseen emergencies (repair home or medical expenses)

8. United States – continued

- Eliminated Provisions
    - "Haircut" provision
    - Immediate payments triggered by company's financial distress
    - Changing form of payment from annuity to lump sum
    - Plan termination and immediate distributions

Penalties for Noncompliance

- All vested benefits are immediately taxable at the IRS underpayment rate + 1%
- Plus 20% penalty

Reporting of deferral amounts must occur in year of deferral

9. Canada

Learning Objectives:

Instructional Objective 3 – The candidate will be able to analyze plans designed for executives or the highly paid

Learning Outcome (b)

- Given a specific context, apply principles and features of supplemental retirement plans

This is a focus question where candidates describe considerations in funding SERPs, and provide specific details on the characteristics of two funding options – Retirement Compensation Arrangements and Letters of Credit.

Solution:

(a)

Exec may exert pressure for secured arrangement to provide benefit security

- Could argue that benefits earned to date should be protected against forfeiture

Protection from employer's inability to pay

- On bankruptcy / insolvency
- Competing pressures on use of cash in a business
  - Controlling shareholders have pressures to pay high dividends leaving low retained earnings which can cause financial difficulties
  - High management fees or product development costs paid to parent company can cause problems for a subsidiary
- Shareholders and creditors may argue that senior execs are responsible
- RCA assets held in trust and therefore protected from employer creditors

Protection from employer's unwillingness to pay

- Change in control of company and reneges on commitments

Recognizes that employer circumstances may change in the future including future pension

Recognizes that member's circumstances may change in future

- May not be appropriate for retiree to bear risk since no longer involved in management of company

Opportunity cost of funding

- May be able to earn a higher return outside fund with money earmarked for funding
- Liability may be substantial / cash requirements high

9. **Canada – (a) continued**

Accounting impact

- Funding generally will have lower expense due to return on assets versus pay as you go
- Balance sheet accrued liability will increase over time because expense > contributions (PAYGO), while funding will result in little or no pension accrual

(b)

RCA

- Provides benefits to employees upon termination, retirement or substantial change in services rendered
- Provides security of funded arrangement
  - Provides security to exec to extent funded
- Company is eligible for tax deduction for its contributions to RCA
- Exec not taxed until benefits payments actually received
  - Part of SERP will be considered salary deferral arrangement if ongoing withdrawals are permitted
- Employer must submit refundable tax to CRA with each contribution
- Contributions made to trust fund with 50% of all contributions and subsequent realized investment earnings must be remitted to CRA as refundable tax
- Refundable tax refunded at 50% of the amount paid out of the trust
  - Company contribution to RCA not subject to payroll taxes
  - Admin burden associated with paying refundable tax
  - Trustee or custodian is required
  - Additional funding required to offset requirement to remit refundable tax (disadvantage to company)
- RCA cost same as PAYGO if discount rate is half that assumed for the business
  - Since only 50% of RCA's assets are actually held in productive investments, RCA has opportunity cost on company
- No restrictions on type of assets held in RCA trust
  - 50% refundable tax is set to approximate highest individual marginal tax rate, fund cannot benefit from lower tax rates on capital gains and dividends from Canadian stocks
- RCA's must be filed with CRA
  - Trust agreement and plan text required
- Full funding will generally lower CICA 3461 pension cost due to EROA
- Company may vest exec's benefits at any time, without negative tax consequences for exec
- One RCA may be used to cover a group of execs

9. Canada – (b) continued

LOC

- Exec has bank's guarantee to a set amount of principle should certain circumstances arise ("triggers")
- Typical triggers:
  - Company fails to make certain number of benefit payments
  - Company fails certain predefined financial tests
  - Change in control of company
  - Company fails to renew LOC
- Deemed an RCA
  - Requires two times the LOC fee to be contributed
  - 50% of LOC fee to RCA trust
  - 50% of LOC fee to CRA refundable tax account
  - Determining value of LOC is crucial to assessing cost effectiveness of use of LOC
- Reduces funding costs of RCA
- RCA cost with LOC generally higher than traditional RCA unless LOC RCA discount rate higher (i.e., must overcome LOC fees)
- No up front funding is required (no assets set aside)
  - Funding deferred until either LOC called or benefit payments made
- Term of LOC is typically 1 year, renewable each year
- Unlike full funding CICA 3461 Accrued Benefit Liability will likely increase over time as pension cost > contributions
- If bank backing LOC requires specific company assets to be pledged as security, CRA deems value of LOC to be value of assets backing it
  - Very little cost advantage to using LOC to secure RCA
- If bank does not require specific company assets to back LOC, value of LOC is fee charged by bank for providing letter
  - Cost of LOC depends on employer credit rating

9. United States

Learning Objectives:

Instructional Objective 1 – The candidate will be able to analyze different types of registered / qualified defined benefit and defined contribution plans, as well as retiree health plans.

The candidate is expected to demonstrate an understanding of the regulations governing the operation of a leveraged ESOP. The well-prepared candidate will be able to describe the potential tax and benefit advantages of a leveraged ESOP relative to other plans.

Solution:

(a) Leveraged ESOP is a type of DC plan established via debt financing

Establishment of an ESOP

- Employer establishes trust fund and trustee acquires funding through a loan
  - Trustee may secure a loan directly, or
  - Employer make secure loan and then loan same amount to trustee
    - Second option is referred to as a back-to-back arrangement
- Trustee uses proceeds of loan to purchase employer stock (usually from employer)

Regular Operation of a Leveraged ESOP

- Purchased stock held in “unallocated suspense account”
- Employer makes contributions to plan on behalf of employees
  - These contributions are used to repay loan
  - As loan is repaid shares allocated to ppt accounts usually by the fractional method
- Distributions typically made in the form of employer stock
- Plan may permit cash distributions as the normal form of payment
- Participant account must (generally) be distributed by
  - End of the year following the year in which ppt dies, retired, or becomes disabled, or
  - The fifth plan year following the year of termination for any other reason
- Employees age 55 who have participated for 10 years must be allowed to diversify into one or more of at least three investment funds
- A new ESOP would be subject to accelerated vesting under PPA 2006
  - 3 year cliff vesting or,
  - 6 year graded

9. United States – continued

(b)

Regulatory requirements related to structure and operation of a leveraged ESOP

- ESOPS are qualified plans and must meet all general plan qualification requirements
- There are additional qualification and tax provisions that apply only to ESOPS
  - Plan may invest only in qualifying employer securities
  - Generally refers to publicly traded common and convertible preferred stock, but
  - May include non-publicly traded stock which meets the following conditions
    - Voting power as great as the employer common stock with greatest voting power
    - Dividend rights as great as the employer common stock with greatest dividend rights
    - Employer or plan may retain right of first refusal on sale of non-publicly traded shares
    - PPT must have a put option that would require employer to re-purchase shares
  - Participants must have the right to vote the shares allocated to their accounts
    - Exemption for closely held companies
      - Voting rights only required for "major" issues
      - Can give each ppt one vote and vote all plan shares in proportion to ppts. votes
  - Stock valuations must be at fair market value
  - Must develop suitable method of determining this for non-public issues and closely held companies
  - ESOP contributions and allocations may not be integrated with social security
  - ESOP generally cannot be aggregated with other plans to meet IRC coverage and nondisc. reqs.
- Deductible contributions limited to 25% of covered payroll for principal repayment
- Contributions made to pay interest on the loan are also deductible

9. United States – continued

(c)

Advantages and Disadvantages of a Leveraged ESOP

Employer's Point of View

- An ESOP can meet some employer needs that other types of DC plans cannot
  - A means to convey a public company into a privately held company
  - Can structure it to dispose of a corporate division, or
  - To provide liquidity to the estate of a major shareholder
  - Place large blocks of stock into presumably friendly hands to avoid takeovers
  - Viewed by some as tax efficient way to raise capital since debt retired with pre-tax dollars
    - But potential income and cash flow issues associated with paying off old debt
    - Contributions and expenses for ESOP will continue after debt is retired

Disadvantages from Employer's point of view

- No unallocated stock can revert to employer if trust is terminated prematurely
- Leveraged ESOP can become inefficient compensation tool under certain stock appreciation scenarios
- May risk disqualification if determined not to meet "exclusive benefit" requirements of the law
- Possible share value dilution effect
- At root is an employee benefit plan and must accommodate overall HR philosophy and objectives

Employees' Point of View

- Greater assurance of contributions than with traditional profit sharing plan
- Employer contributions to the plan, not value of stock allocations count against annual 415 addition limit
- Repayment of loan interest and reallocated forfeitures also do not generally count against limit
  - But problems if more than 1/3 of deductible contributions are allocated to HCEs
- Employees' financial security may be too closely tied to employer's financial condition

10. Canada

Learning Objectives

Instructional Objective 2 – The candidate will understand how the regulatory environment affects plan design and understand how to apply relevant restrictions

Learning Outcomes (a) and (b)

- Explain and apply the regulatory limits placed on types of plans that can be offered
- Explain and apply restrictions on plan design features to a proposed plan design

The candidate is expected to compare each of the proposed plan features to the law, regulations and Capital Accumulation Plans guidelines.

Solution:

Plan must comply with PBA – Minimum Standards Legislation

- Vesting Requirements is too long, less than 2 years
  - *Would advise client to set vesting of employer conts at 2 years*
- Employee communication is required – none planned
  - *Would advise client to provide information on plan to all employees including plan summary and annual statement*

Plan must comply with registration rules set out in the ITA Regs

- Employer contribution level is too low
- Required Min er conts = 1% of total pensionable earnings of all active members
- Use of non-vested forfeitures may reduce employer requirements to below 1%
  - *Would advise client to increase levels of conts to 1% or higher depending on desired purpose of Plan*

10. Canada – continued

Plan must comply with Capital Accumulation Plans guidelines

- Guidelines cover
- Requirements for setting up a new plan
- Requirement for initial and ongoing communication and disclosure
- Provision of Investment information and decision-making tools
- Plan maintenance criteria
- Plan must allow individual to transfer funds among investment options at least quarterly
  - *Would advise client to reduce current provision of annual transfer*
- Employee communication
- Information, documentation, and decision-making tools provided should be clear, easy to understand
- Policies regarding plan must be established and communicated
- Sponsor should provide advance notice to members of significant changes in investment options where plan activity may be suspended or disrupted
- Sponsor should have a policy outlining what happens if member does not select an investment option and this should be communicated prior to any action taken by the sponsor
  - *Would advise client to develop communication regarding joining plan*
  - *Would advise client to provide for annual plan statement for each member*
  - *Would advise client to set up plan summary*
  - *Would advise client to set up communications around investment of account balances without providing advice*
- HR Manager not acceptable choice of investment advisor
- Co should consider whether or not they want to enter into arrangements with service providers to offer investment advice to members
- If no provider, advise member to seek their own investment advice
- Would advise client to use investment provider
- Choice of Investment options are not acceptable
- Sponsor should select, offer, and monitor a diversified range of investment options to members
- Choice between GICs and employer stock is not diversified
- GICs completely conservative
- Employer stock is extremely risky, if Co experiences problems employee will lose job and retirement saving

10. Canada – continued

- Employer stock not allowable investment in a DC plan
- Would advise client to provide a portfolio of 3 to 5 options across a range of risk and return criteria

Would want to carefully review any supporting documentation to check for concerns with other provisions

- Draft of SIP & G
- Draft of Plan Doc
- RFP's from or contract with investment provider (for GICs)
- Any benefits governance documents

Other specific plan design issues to consider carefully

- What will client do with non-vested forfeitures?
- How will plan expenses be paid?
- How will retirement benefits be provided?
- Are there any concerns with highly paid employees and PA Limits?
- How will periods of absence be treated?

Does Plan and its design make sense for Co

- Would want to get background on choice of plan type
  - Minutes from any discussion meeting
  - Employee focus group results
  - Talk to HR to get reasoning behind this choice
- Review Age / Service / Salary distribution of Co employees
- Will employees appreciate and use plan
- Should it vary by age and service
- Is it too high

Choice of Money Purchase vehicle

- *If main goal is to invest in employer stock* $\Rightarrow$ *Choose DPSP*
- *If main goal is to provide for retirement* $\Rightarrow$ *Choose DC Registered Plan*

Plan Governance Policy needed

- Safeguards should be in place to monitor plan maintenance including investment provider
  - *Advise client to have governance policy*

11. Canada

Learning Objectives:

Instructional Objective 2 – The candidate will understand how the regulatory environment affects plan design and understand how to apply relevant restrictions

Learning Outcome (d)

- The candidate will be able to, for the designated region test for plan design restrictions intended to control the use of tax incentives.

This is a focus and calculation question, where the candidate is asked to describe and apply the PSPA provisions of the Income Tax Act.

Solution:

(a)

NOC Service	**Modified Formula**				
		–	=	0	Sum of redetermined Pension Credits (“PC”) with the enhancement less sum of PC immediately before the Past Service Event (“PSE”)
			+	0	Adjustment where non-vested termination rules are used
			+	10,000	Money purchase transfer associated with former provision less the amount that the PC before the PSE exceed the PC after the PSE
			–	15,000	Qualifying transfer
GOC Service	**Basic Formula**				
		25,190	=	53,280	Sum of redetermined PC with the enhancement
			–	0	Sum of PC immediately before the PSE
			–	40,000	Qualifying transfer
			+	11,910	Excess money purchase transfer
Total PSPA		25,190			

11. Canada – continued

(b)

PSPA approval process

Non-exempt PSPA approval process

- PSPA does not qualify for exempt process since
  - PSPA is greater than $nil and
  - The past service even does not increase the benefits of all or most of the members of the plan

- NOC must file Form T1004, applying for the Certification of a Provisional Past Service Pension Adjustment, with CRA
- PSPA must be certified by the Canada Revenue Agency ("CRA")
- There is no deadline for applying for certification however, additional benefits can't be paid until certification received

- CRA will inform NOC if the PSPA is certified
- NOC to notify former member that the PSPA is certified within 60 days of certification

(c)

Employee's Options

CRA will certify the PSPA where former member's makes a qualifying withdrawal of at least $14,190 and less than $22,190

Minimum qualifying withdrawal

14,190	=	25,190	PSPA
	–	3,000	Unused RRSP deduction room at the end of prior year
	+	0	Accumulated PSPA for the year
	–	0	PAR reported for the year
	–	8,000	

Maximum qualifying withdrawal

22,190	=	14,190	Minimum qualifying withdrawal
	+	8,000	

CRA will give the former member the opportunity to make a qualifying withdrawal

- Former member has 30 days to file Form T1006 detailing the qualifying withdrawal
- Must include T4RSP form issued by RRSP issuer or T1006 with Part IV certified by issuer
- Withdrawal from Spousal RRSP does not count

11. Canada – (c) continued

Certification denied where

- Former member does not have $14,190 in RRSP assets to withdraw or does not file Form T1006
- Does not make qualifying withdrawal and does not file Form T1006