Today's Objectives

- To discuss types of defined benefit pension plans
- To discuss types of combination pension plans

Recall that:

- There are 3 types of registered pension plans (RPPs):
  A. Defined Contribution (DC) Plans
  B. Defined Benefit (DB) Plans
  C. Combination of DB and DC Plans

B. Defined Benefit (DB) Plans

– There are 4 types of DB plans:
  i. Flat Benefit
  ii. Career Average Earnings
  iii. Final Average Earnings
  iv. Flexible plans

Also recall that:

B. Defined Benefit (DB) Plans

   i. Flat Benefit - represent about 15% of all DB plans
      - **The retirement pension for this type of plan is a specified number of dollars for each year (or month) of service**

   ii. Career Average Earnings Plans - about 35% of all DB plans
      - **Annual pension benefit is calculated as a certain percentage of earnings in each year of plan membership (equal weight is given to each year's earnings (years of service is considered)**
      - Updating the "plans earning base" addresses inflation and lower earnings years

Example 1 – Career Average Earnings Plan

- An employee is looking to retire in two months (March 2020) when he turns aged 65. He has been a member of the company's defined benefit plan since he was age 30. The DB plans is a "1.5% career average" plan. You are given the employee's salary history:

Age	# Years	Salary
30 to 39	10	$40,000
40 to 49	10	$65,000
50 to 54	5	$95,000
55 to 64	10	$100,000

a) Calculate the annual pension that this individual will receive.

b) Now, suppose all earnings prior to 2020 are deemed to be equivalent to earnings in 2019 for benefit purposes. What then would be the annual pension that this individual would receive? (This would be an example of a "plan earnings base" update.)

(a) $1.5\% \times 10 \times 40{,}000$

$+ \sim \times 10 \times 65{,}000$

$+ \sim \times 5 \times 95{,}000$

$+ \sim \times 10 \times 100{,}000 = 37{,}825.$

(b). $1.5\% \times (10+10+5+10) = 52{,}500.$

1. <u>Registered Pension Plans (RPPs)</u>

Types of Registered Pension Plans (RPPs)

B. Defined Benefit (DB) Plans

iii. Final Average Earnings Plans - about 49% of all DB plans

- Most popular salary based DB plan category, especially with public plans
- **Annual pension is based on their average earnings for a stated number of years before retirement AND years of service (yos)**
- Examples include but are not restricted to:
  - 1.5% of average salary in 3 years prior to retirement × yos
  - 1.5% of average salary of {best 5 of last 8 years prior to retirement} × yos
  - A few (public) plans offer x% of {average salary of best 5 years} × yos

1. Registered Pension Plans (RPPs)

Types of Registered Pension Plans (RPPs)

B. Defined Benefit (DB) Plans

iii. Final Average Earnings Plans

- Final average earnings DB plans provide best protection against inflation
  - One exception could be employees whose earnings decline as they approach retirement

Example 2 – Final Average Earnings Plan

- An employee turned 65 on January 1st 2020 and retired on that date. He was a member of a Defined Benefit "2% Final Average Earnings" plan where the final average earnings is based on final 5 years of earnings. He has 30 years of service.
- Calculate the annual pension that is being paid out to this employee, given his/her salary history below.

$2\% \times 30 \times (378{,}000)/5$

$= 45{,}360.$

Year	Salary
2019	$80,000
2018	$79,000
2017	$76,000
2016	$73,000
2015	$70,000
	378k.

Example 3 – Defined Benefit Plans

- An employee just retired at age 62 (on his birthday) and is eligible for pension benefits. Here is their salary info (joined plan at exact age 25):

years of service = 37

Age	# Years	Salary
25 to 28	4	$35,000
29 to 34	6	$40,000
35 to 39	5	$47,000
40 to 49	10	$54,000
50 to 51	2	$56,000
52 to 53	2	$57,000
54	1	$58,000
55	1	$59,000
56	1	$61,000
57	1	$63,100
58	1	$65,000
59 to 61	3	$52,000

Example 3 – Defined Benefit Plans

- Calculate his annual pension benefit if the pension benefit is:
  a) A flat benefit of $75 per month for the first 15 years of service and $100 per month thereafter.
  b) A 1.5% final average earnings benefit plan (based on the best 5 of last 10 years of service)
  c) A 1.5% career average earnings benefit plan (answer: 27,646.50)

first 15 yrs remaining 22 yrs.

a) annual benefit = (75 × 15 × 12) + (100 × 22 × 12). = 39900.

b). 54 58000
55 59000
56 61000
57 63100
58 65000

1.5% 37 × 306,100/5 = 33,977.10.

c). Career average = 27,646.50.

$$\frac{\sum 1.5\% \times \text{years} \times \text{benefit}}{\text{total years}}$$

1. Registered Pension Plans (RPPs)

Types of Registered Pension Plans (RPPs)

B. Defined Benefit (DB) Plans

iv. Flexible Plans - about 1% of all DB plans

- These plans offer a "tax-effective means" of providing enhanced retirement benefits to employees
- With Flexible Plans:
  - **Employer (E'er) pays for the basic pension benefit**
  - **Employee (E'ee) pays for additional ancillary benefits (E'ee has the option to buy supplemental benefits)**

1. <u>Registered Pension Plans (RPPs)</u>

Types of Registered Pension Plans (RPPs)

B. Defined Benefit (DB) Plans

iv. Flexible Plans

- Advantages:
  - Additional ancillary benefits can be purchased without increasing the e'ees Pension adjustment (PA) or reducing their RRSP limit
  - Customization (e'ee can choose ancillary benefits or not)
- Disadvantages:
  - More complex for e'er to administer
  - Members (ee's) require a high level of understanding of the plan and the ancillary benefits offered

1. <u>Registered Pension Plans (RPPs)</u>

Types of Registered Pension Plans (RPPs)

B. Defined Benefit (DB) Plans

iv. Flexible Plans

- Ancillary Benefit examples:
  1. Indexing of Pension Benefits
  2. Enhanced final earnings-say from 1.5% to 2%
  3. Enhanced early retirement benefits
  4. Enhanced Post Retirement Spousal Benefit

- Flexible Benefit plans can be ‘front end’ or ‘back end’:
  – ‘front end’: plan member chooses ancillary benefits in advance (in exchange for his contributions)
  – ‘back end’: e’ee makes contributions and they accumulate and ancillary benefits chosen at termination or retirement

1. <u>Registered Pension Plans (RPPs)</u>

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans
   - These include:
     i. Hybrid Plans
     ii. Combination Plans
     iii. Cash Balance Plans
     iv. Multi-Employer Plans
     v. Target Benefit Plans

1. Registered Pension Plans (RPPs)

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans

   i. Hybrid Plans

      - A Hybrid plan has both DB and DC components
      - **Most common hybrid plan type will provide the greater of {a defined benefit pension, the pension that can be purchased with a members DC account balance}**
      - Hybrid plan operates as DC plan but valued (annual actuarial valuation) like a DB plan to ensure funding adequacy
      - **These tend to be contributory plans**

1. Registered Pension Plans (RPPs)

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans

   i. Hybrid Plans

      Example:

      - DB min benefit = 1.5% earnings per yos
      - Also you know calculated minimum annual pension = $50,000 for a retiring e'ee
      - $Y is the member's DC account balance at retirement
        - If $Y is such that it can purchase $40,000 of annual income, plan member gets $50,000 annual income {greater of…}
        - If Y is such that it can purchase $60,000 of annual income, member will get $60,000 annual income {greater of…}

1. <u>Registered Pension Plans (RPPs)</u>

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans

ii. Combination Plans

- Pension benefit is the sum of pension provided through the DB component and pension provided through DC component

Example:

- DB: 1% of final average earnings (FAE) (non-contributory plan)
- DC: e'ee contributes 3-5% of salary to a DC plan
- At retirement, e'ee gets annual pension benefit = (.01)(FAE)(yos) PLUS they can use the DC account value to purchase additional annual retirement income

1. <u>Registered Pension Plans (RPPs)</u>

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans

Note:

- Hybrid Plans and Combination plans aggregated account for a very small % of RPPs in Canada (less than 2%)
- Reasons for this are that these plans are very complex to administer and difficult to explain to plan members

- Simpler alternative to previous example: DB (as given) + Group RRSP!

1. Registered Pension Plans (RPPs)

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans

iii. Cash Balance Plans

- **These plans are more popular in the USA then Canada** (some issues with ITA in Canada)
- Here's how they work:
  - Ee's are assigned annual credits based on earnings during year
  - Credits deposited into a 'hypothetical' account for each e'ee
  - They accumulate with interest until retirement or termination
  - The employer (e'er) makes the investment decision and takes the investment risk and is liable for a minimum guaranteed benefit

1. <u>Registered Pension Plans (RPPs)</u>

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans

  iii. Cash Balance Plans

- Advantage:
  - These plans tend to provide a much higher benefit upon termination (e.g. hypothetical account value vs. a DB commuted value) than regular DB plans, which appeals to some employees

1. Registered Pension Plans (RPPs)

Types of Registered Pension Plans (RPPs)

C. Combination of DB and DC Plans

iv. Multi-Employer Plans (MEP)

- Established by union negotiation with two or more nonaffiliated employers (e'ers) in a related industry
- Plans specify both the contribution level & level of benefits
- All employers (that are part of MEP) contribute to the plan
- Benefits typically determined using a flat benefit formula
- **Unlike single employer plans, benefits may be reduced if they cannot be supported by current level of contributions and/or employers are unwilling to increase contributions**

1. Registered Pension Plans (RPPs)

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   v. Target Benefit Plans

   - Similar to design of multi-employer plans, but they are established by a single employer
   - Designed to deliver a targeted benefit but administrators can adjust benefit benefits (reduce if funding issues)
   - Provinces at varying stages with these plans (currently available in 4 provinces)