

## 1. INTRODUCTION

Employee Compensation includes:

- Post-employment (Retirement) Benefits e.g. pensions, health insurance.
- Share-based Compensation e.g. stock options, stock grants.

The major issue in measuring the value of compensation is that measurement is based on a large number of

assumptions and estimates because employees (typically) receive the benefits earned by them in future periods (as discussed further in this reading). These assumptions have a significant impact on the company's presentation of operating and financial performance. The differences in assumptions also make comparison difficult across companies.

## 2. PENSIONS AND OTHER POST-EMPLOYMENT BENEFITS

### 2.1 Types of Post-Employment Benefit Plans and Implications for Financial Reports

Companies can offer retirement benefits to their employees in following ways:

- Pension plans
- Health care plans
- Medical insurances
- Life insurances etc.

#### Objective of Accounting for Employee benefits:

The objective of accounting for employee benefits is to measure the cost of these benefits and to recognize these costs in the sponsoring company's financial statements during the employees' periods of service.

#### Types of Pension Plans:

**1) Defined Contribution Plans (DC):** Under defined contribution plan,

- Individual accounts are made for participating employees (compulsory under U.S. GAAP but not under IFRS).
- Both employee and employer contribute to the plan.
- Amount of future benefit is not defined.
- Employer made agreed-upon contribution into the plan in the same period in which employee provides the service and employer has no obligation to make further payments beyond that amount.
- Actual future benefit depends on the performance of the investments within the plan.
- In DC plan, investment risk is born by Employees.

#### Accounting Treatment:

- The employer's contributions are recorded as an expense on the Income Statement and no pension-related liability is created on the balance sheet.
- For any unpaid contributions, a company (employer) recognizes an accrual (i.e. current liability) at the end of the reporting period.

Under DC plans,

Pension expense = Company's annual contribution to the plans adjusted for changes in year-end accruals

**2) Defined Benefit Plans:** Under defined benefit plan,

- Amount of future benefit is defined.
- The pension benefit amount is defined on the basis of Plan Formula i.e.
  - Age
  - Years of service
  - Compensation etc.

#### Example:

Benefit will be provided annually until death and compensation is based on 1% of final year's salary. If employee has 25 years of service and final salary is of \$100,000

Each year upon retirement employee will receive =  $\$100,000 \times 1\% \times 25 \text{ years of service} = \$25,000$ .

- The amount of future obligation based on plan formula must be estimated in the current period.
- Employer has to make various actuarial assumptions & computations in order to measure future obligation. These assumptions include:
  - Employee turnover
  - Average retirement age
  - Life expectancy after retirement
- Most DB plans are funded through a separate legal entity i.e. pension trust and the assets of the fund are used to make payments to retirees.
- Companies are required to fund DB in advance. Therefore, in DB plan, investment risk is born by the company (Employer).
- The timing of contributions into the plan and the timing of payments from the plan can differ significantly from when the services are rendered and the benefits are earned.

**Accounting Treatment:**

The pension payments to be paid in future represent a liability; of a company therefore, pension-related liability is created on the balance sheet.

**Other Post-Employment Benefits (OPB):** OPB are the promises by the company to pay benefits in the future i.e.

- Life insurance premiums
- Health care insurance for its retirees
  - They are more complex to measure than DB because future increases in costs i.e. health care over a long time horizon have to be estimated.
  - Amount of future benefit depends on plan specifications and type of benefit.
  - The amount of future obligation must be estimated in the current period.
  - Companies are not required to fund an OPB in advance.
  - Employer recognizes expense in the income statement as the benefits are earned but employer's cash flow is not affected until the benefits are actually paid to the employee.

See: Exhibit 1, Volume 2, Reading 14.

## 2.2 Measuring a Defined Benefit Pension Plan's Liabilities

**IFRS:** The **Projected Unit Credit Method** is used to measure the liability of a Defined Benefit Pension Plan. Under Projected Unit Credit Method,

- The amount of pension benefit increases with each additional year of service (i.e. year of employment).
- Total expected retirement costs are allocated over the employee's service periods.
- Pension obligation is referred to as PV of defined benefit obligation (PVDBO).
- DB obligation reflects the actuarial PV of all units of benefit (without deducting any plan assets) that the employee has earned as a result of past and current periods of service. This obligation is based on following actuarial assumptions:
  - i. **Demographic variables** i.e. employee turnover & life expectancy.
  - ii. **Financial variables** i.e. future inflation & expected long-term return on the plan's assets.

**U.S. GAAP:**

Under U.S. GAAP, pension obligation is referred to as projected benefit obligation (PBO). It is the actuarial present value (PV) of all future pension benefits earned to date, based on expected future salary increases. It is based on not only the employee's service up to a specific date but also on future compensation levels (expected future salary increases).

Two other measures are used under U.S. GAAP to estimate the liabilities of a defined benefit pension plan are as follows:

**1) Vested Benefit Obligation (VBO):** It is the "actuarial PV of vested benefits". It is based on employee's service up to a specific date only. It is not contingent on future service.

**2) Accumulated Benefit Obligation (ABO):** It is the actuarial present value (PV) of future pension benefits (vested or non-vested) earned to date, based on only current salary levels, ignoring any future salary increases.

PBO is the most relevant measure for analysis because it is based on "going-concern" assumption and recognizes that benefits will increase when future compensation increases. Also,

$$VBO < ABO < PBO$$

**NOTE:**

When Pension Benefit Formula is not based on future compensation levels i.e. when employee earns a fixed amount for each year of service, then the ABO and PBO will be equal.

**Vesting:** Under both DB and DC plans, future benefits to which employees are entitled to, may depend on vesting period. Vesting refers to a condition in pension plans whereby an employee is entitled to receive future benefits only after meeting certain criteria i.e. working for a pre-specified number of years of service. If the employee leaves the company before that pre-specified number of years, he/she may receive none or only a portion of the benefits they have earned up until that point.

- Employee's service years prior to the vesting date result in an increase in pension obligation.
- When defined benefit obligation is measured, companies estimate the probability that some employees may leave before the vesting period ends and this probability is then used to calculate the current service costs and PV of pension liability.

## 2.3 Financial Statement Reporting of Pension and Other Post-Employment Benefits

### 2.3.2.1 Balance Sheet Presentation under Defined Benefit Pension Plans

Under both IFRS and U.S. GAAP, companies are **required** to report pension plan's funded status on their balance sheet. Where,

$$\text{Funded Status} = \text{PV of the DB obligations} - \text{Fair value of the plan assets}$$

**Underfunded DB plan:** When pension obligation > pension plan assets → plan has a deficit and is referred to as **underfunded** pension obligation.

- When a plan has a deficit, the total amount of the net **underfunded** pension obligation is reported as a **net pension liability** on the balance sheet.

**Overfunded DB plan:** When pension obligation < pension plan assets → plan has a surplus and is referred to as **overfunded** pension obligation.

- When a plan has a surplus, the total amount of the net **overfunded** pension obligation is reported as a **net pension asset** on the balance sheet.

#### Important to Note:

However, in case of **overfunded** pension obligation, the amount of the asset that can be reported on the balance sheet is restricted to the lower of the:

- surplus and
- the asset ceiling → PV of future economic benefits i.e. refunds from plan or reductions of future contributions.

**Practice: Example 1,**  
Volume 2, Reading 14.



#### 2.3.2.2 Periodic Pension Cost

Period pension cost of a company's DB pension plan = change in the Net pension liability or asset adjusted for employer's contributions.

Period cost increases the defined benefit pension liability and it is offset by earnings on the pension plan's assets.

**Accounting treatment of periodic cost under IFRS:** Under IFRS, periodic pension cost is composed of three components i.e.

**1) Service costs:** They include

**a) Current service cost:** It refers to the cost or increase in pension obligation as a result of employees' service in the current period i.e. it is the present value of new benefits earned by the employee working another year.

**b) Past service cost:** It is the cost or increase in the PV of a company's estimated pension obligation that results due to changes in the terms of a pension plan applicable to employees' service during previous periods e.g. plan amendments or plan curtailments (reductions in number of employees covered by a plan).

Accounting treatment: Under IFRS, service costs (both current and past) are fully and immediately recognized as company's defined benefit pension expense in Profit or loss (P&L).

**2) Net interest expense/income:** It is calculated as:

$$\text{Net Interest expense} = \text{Discount rate} \times \text{Net Pension liability}$$

where,

**Discount rate** = interest rate used to calculate the PV of future pension benefits.

This rate is based on current rates of return yield on high-quality corporate bonds (fixed-income investments) with duration (or maturity) and currency similar to the timing and currency of a company's future pension obligations.

- Net interest expense represents financing costs incurred by deferring payments related to the plan.
- It increases the amount of periodic costs.  
**Net Interest income** = Discount rate × Net Pension asset
- Net interest income represents financing income generated by prepaying obligations related to the plan.
- It reduces the amount of periodic costs.

**Accounting treatment:** Under IFRS, net interest expense/income is fully and immediately recognized in P&L.

**3) Re-measurement:** These include:

**a) Actuarial gains and losses:** Actuarial gains & losses can occur when changes are made to the assumptions on which a company's estimated pension obligation has been based e.g.

- Employee turnover
- Mortality rates
- Retirement ages
- Compensation increases

- When changes in actuarial assumptions result in increase in pension obligation, it referred to as actuarial loss.
- When changes in actuarial assumptions result in decrease in pension obligation, it referred to as actuarial gain.

**b) Net return on plan assets** i.e.

$$\text{Net return on plan assets} = \text{Actual return on plan assets} - (\text{Plan assets} \times \text{Interest rate})$$

**Accounting treatment:** Under IFRS, re-measurements are fully and immediately recognized in Other Comprehensive Income (OCI); and afterwards, they are **not** amortized to P&L.

**Accounting treatment of periodic cost under U.S. GAAP:**

**1) Service costs:**

**a) Current service costs** are fully and immediately recognized as company's defined benefit pension expense in Profit or loss (P&L).

**b) Past service costs:**

- These costs are not immediately recognized as an expense; rather, they are recognized in OCI in the period in which the change occurs.
- Subsequently, these costs are amortized to P&L over the **average service lives** of the affected employees and reported as component of pension expense.

**NOTE:**

When same past service cost arises in IFRS and U.S. GAAP, annual expense would be lower in U.S. GAAP.

**2) Interest expense or income:** Unlike IFRS, these components are not reported as net under U.S. GAAP.

- Like IFRS, interest expense on plan liabilities is recognized in P&L.
- Unlike IFRS, expected return on plan assets are recognized in P&L rather than return based on discount rate. (Note that expected return is treated as a reduction to the cost).  

$$\text{Amount recognized as interest income} = \text{Plan assets} \times \text{Expected return on plan assets}$$
- Any difference between the expected return and actual return on plan assets is reported as a component of OCI.

**3) Re-measurement:** Under U.S. GAAP,

- In addition to the changes made to the assumptions, actuarial gains/losses may also occur due to differences between the expected and actual return on plan assets i.e.  

$$\text{Actual return} - (\text{Plan assets} \times \text{Expected return})$$
- All actuarial gains & losses reported as part of net pension liability or net pension asset.
- These actuarial gains & losses can either be immediately recognized in P&L or recognized in OCI and subsequently amortized to P&L using **the corridor approach** or **faster recognition method**.

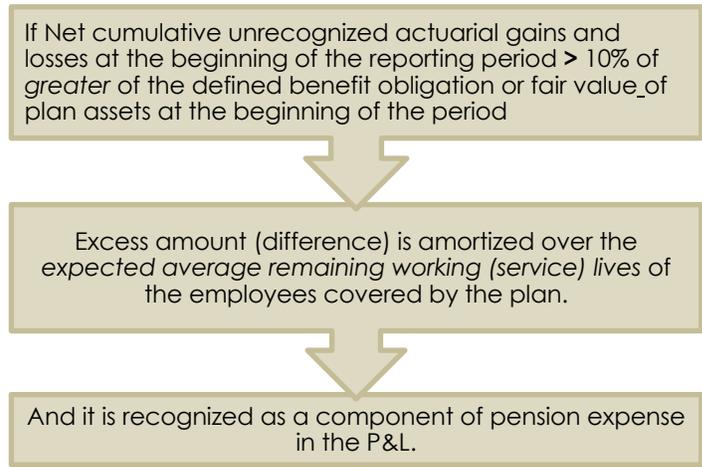
**Important to Note:** Under IFRS, companies are NOT allowed to amortize amounts from OCI into P&L.

- All actuarial gains & losses that are not reported in OCI are recognized in P&L.
- Commonly, the actuarial gains & losses are recognized in OCI. These are recognized in P&L only when certain conditions of "corridor approach" are satisfied (discussed below).

**NOTE:**

- Using actual return rather than expected return tends to increase earnings volatility.
- When actuarial gains/losses are reported as other comprehensive income, it reduces the volatility of pension expense but increases the volatility of shareholders' equity.

**Corridor approach:** Under corridor method, net cumulative **unrecognized** actuarial gains and losses at the beginning of the reporting period are compared with the defined benefit obligation and fair value of plan assets at the beginning of the period as explained below.



**NOTE:**

Here the term corridor refers to 10% range.

**Faster recognition method:** Under this approach, companies are allowed to recognize actuarial gains and losses in any systematic way that results in a faster recognition than the 10% corridor approach. However, this approach can be used provided that the same basis is applied to both gains and losses, and is applied consistently from period to period and plan to plan.

**Example:**

	2010	2009
Projected Benefit Obligation (in 000s) – Jan 1	\$450	\$300
Projected Benefit Obligation (in 000s) – Dec 31	\$550	\$450
Fair value of Plan assets (in 000s) – Jan 1	\$150	\$155
Fair value of Plan assets (in 000s) – Dec 31	\$130	\$150
Net Cumulative Unrecognized Actuarial Loss (in 000s) – Dec 31	\$130	\$145
<b>Average remaining working lives of firm employees at Jan 1, 2010 is 10 years</b>		

**Using the Corridor Method,** Actuarial loss recognized in the P&L for the period 2010 is as follows:

1. First of all, take greater of the defined benefit obligation or fair value of plan assets at the beginning

of the period i.e. greater of 450 & 150 and multiply this number by 10%.

$$10\% \times 450 = 0.10 \times 450 = 45$$

2. Now take difference between Net cumulative unrecognized actuarial gains and losses at the beginning of the reporting period & 10% of greater of the defined benefit obligation or fair value of plan assets at the beginning of the period (as calculated in 1<sup>st</sup> step).

$$\text{Excess} = 145 - 45 = 100$$

3. Excess amount i.e. \$100 is amortized over the 10 years is reported as a component of pension expense in the P&L i.e.

$$\text{Actuarial Loss allocated over 10 years in the Income statement} = \$100/10 = \$10.$$

### Reporting the Periodic Pension Cost:

**A. Reporting the Pension costs that are capitalized:** A portion of pension costs can be capitalized and included in the cost of self-constructed assets i.e. inventories. In this case,

- Pension cost is recognized in P&L as part of cost of goods sold when the inventories are sold.

### B. Reporting the Pension costs that are NOT capitalized:

**Under IFRS:** Under IFRS, there is no specification with respect to reporting of various components of periodic pension cost; however, components that are included in P&L and in OCI are clearly specified.

In addition, companies are allowed to disclose portion of net pension expense within different line items in P&L e.g. interest cost and expected return on plan assets can be reported as financing cost on the Income statement. A P&L statement under IFRS includes:

- Current service costs
- Past service costs
- Net Interest cost

**Under U.S. GAAP:** Under U.S. GAAP, companies are **required** to report the various components of pension expense that are recognized in P&L as a **Net Amount** within the same line-item on the Income statement. An income statement under U.S. GAAP includes:

- Current service costs
- Interest cost
- Expected return on plan assets or actual return
- Amortization of Past service costs

- Actuarial gains & losses (if company recognizes them in income statement)

where,

$$\text{Transition Liability} = \text{PBO liability} - \text{ABO liability}$$

**Similarities:** Under both IFRS and U.S. GAAP, companies are required to disclose total periodic pension cost in the notes to the financial statements.

### 2.3.3) More on the Effect of Assumptions and Actuarial Gains and Losses on Pension and other Post-Employment Benefits Expense

Under DB pension plans, pension obligation is based on various estimates and assumptions e.g.

- Employee turnover
- Employees' life expectancy post employment
- Years of service
- Rate of increase in compensation or compensation growth rate
- Discount rate

In addition, various components of periodic pension cost depend on a company's estimated pension obligation.

#### Rate of compensation growth (future salary increases):

- Compensation growth rate assumption affects both DB obligation and pension expense.
- Compensation growth rate assumption has no effect on ABO & VBO.

**Discount rate:** The rate used to estimate the PV of future benefits is called discount rate.

- *The discount rate is not the risk free rate.* This rate is based on current rates of return on high quality corporate bonds with the same duration as that of benefit.
- Discount rate assumption affects all three measures of benefit obligation i.e. PBO, ABO & VBO.

**Expected return on plan assets:** Under U.S. GAAP, assumptions related to expected return on plan assets can have a significant effect on annual pension costs of a company.

- The expected return on plan assets has no effect on the PBO; rather, it only reduces pension expense.

**Important to Note:** Higher expected return on plan assets reflects more risky investments e.g. equities.

**2.4.1) Assumptions**

**Effect of Changing Pension Assumptions on Benefit Obligations**

Assumption	Effect of assumption on Pension obligation (i.e. on balance sheet)	Effect of assumption on Periodic Pension Cost
<b>Higher Discount Rate</b>	Lower pension obligation  <b>Note:</b> A lower pension obligation improves Funded status of the Plan.	Lower pension costs (because of lower beginning value of obligation and lower service costs)
<b>Higher Rate of Compensation Growth</b>	Higher pension obligation (because of increased future pension payments)	Higher pension costs (because of higher service costs)
<b>Higher Expected Rate of Return on plan assets</b>	No Effect (because fair value of plan assets is used on Balance sheet)	Under IFRS → Not applicable Under U.S. GAAP → Lower pension costs
<b>Increase in life expectancy</b>	Higher pension obligation <b>But</b> , no effect if pension benefits are paid as lump sum or over a fixed period.	-----

**Effect of Changing Pension Assumptions on Pension Expense**

Assumption	Effect of assumption on current service cost	Effect of assumption on interest cost	Effect of assumption on expected return on plan assets	Effect of assumption on pension expense
<b>Higher Discount Rate</b>	Decrease	Decrease  <b>NOTE:</b> <ul style="list-style-type: none"> <li>Reduces Interest cost (PBO × Discount rate) when time to retirement is long.</li> <li>When plan is mature, high discount rate increases interest cost instead of decreasing it.</li> </ul>	No Effect	Decrease  <b>NOTE:</b> Because increase in Discount rate reduces PV of future sum. This reduces the current service cost.
<b>Higher Rate of Compensation Growth</b>	Increase	Increase	No Effect	Increase
<b>Higher Expected Rate of Return on plan assets</b>	No Effect	No Effect	Increase	Decrease

In short, a company can improve its reported financial performance by

- Increasing the discount rate.
- Lowering the compensation growth rate.
- Increasing the expected return on plan assets.

**NOTE:**

Changing an assumption may have a small effect on the gross amount of DB obligation but may have a much larger effect on the funded status (i.e. a net pension amount).

**IMPORTANT EXAMPLE:**

**Practice: Example 2 & 3,  
Volume 2, Reading 14.**

**Effect of Assumptions on Other Post-Employment Benefits liability & expense:**

Other post-employment benefits e.g. health care plans are also based on various estimates and assumptions.

These assumptions include:

**a) Trend rates and patterns of trends of health care cost:**

The future medical expense inflation rate is known as the **ultimate health care trend rate** i.e. the higher the assumed ultimate health care trend rate, the higher the post-employment medical obligations and periodic expense related to these plans.

**NOTE:**

Increase in health care cost trend rate leads to increase in a company's debt-to-equity ratio.

**b) Medical expense inflation rate** i.e. the higher the assumed medical expense inflation rate, the higher the post-employment medical obligations and periodic expense related to these plans.

**c) Life expectancy of employees covered by the plan** i.e. increase in life expectancy results in increase in the obligation and periodic expense related to these plans.

**Conservative accounting or Conservative bias:** Holding all else constant, the following assumptions would each result in a higher benefit obligation and a higher periodic expense:

- A lower discount rate.
- A higher rate of compensation growth
- A higher assumed near term increase in health care costs.
- A higher assumed ultimate health care trend rate.
- A later year in which the ultimate health care trend rate is assumed to be reached.

**Aggressive accounting or Aggressive bias:** Holding all else constant, the following assumptions would each result in a lower benefit obligation and a lower periodic expense:

- A higher discount rate.
- A lower rate of compensation growth
- A lower assumed near term increase in health care costs.
- A lower assumed ultimate health care trend rate.
- An earlier year in which the ultimate health care trend rate is assumed to be reached.

**Important to Note:**

- Apart from bias, assumed discount rates vary among companies due to differences in the regions/countries and differences in the timing of obligations which ultimately affect the interest rate used as discount rate.
- The assumptions used by the companies **must be internally consistent**, which implies that
  - If inflation rate is increasing then the discount rate must also be increasing e.g. for plans located in higher-inflation regions, **both** the assumed discount rates and assumed compensation growth rate **must** be higher.
  - If the assumed discount rate is increasing but the assumed compensation growth rate is decreasing or unchanged, it indicates that assumptions are not internally consistent.

**Practice: Example 4,  
Volume 2, Reading 14.**



## 2.4 Disclosures of Pension and Other Post-Employment Benefits

Following factors can affect comparisons across companies:

- 1) Differences in key assumptions.
- 2) Differences between IFRS & U.S. GAAP in the accounting treatment of pension liability and expense.
- 3) Differences between IFRS & U.S. GAAP in the presentation of pension expense in P&L i.e.

- Under U.S. GAAP, all components of pension expense are reported as part of operating expense in P&L.
- Under IFRS, components of pension expense can be reported in P&L as either operating expense or financing expense depending on the nature of expense.

- 4) Differences in cash flow information i.e.

- Under U.S. GAAP, the contribution made by the employer is treated as an operating activity.
- Under IFRS, some portion of the contribution made by the employer can be treated as a financing activity rather than operating.

### 2.4.2) Net Pension Liability (or Asset)

Under both IFRS and U.S. GAAP, companies report **net** pension asset or liability on the balance sheet instead of reporting plan assets and PBO separately i.e. gross benefit obligation.

- An analyst must compare the gross benefit obligation of a company under analysis with its total assets (including gross amount of benefit plan assets), shareholders' equity, and earnings.
- If Gross Benefit Obligation is greater than the sponsoring company's total assets, then even a small change in pension obligation can have a significant **financial** impact on sponsoring company.
- When gross amounts of benefit obligation are reported on the balance sheet → ROA will be lower (i.e. higher denominator).
- When gross amounts of benefit obligation are reported on the balance sheet → Leverage ratios will be higher.

### 2.4.3) Total Periodic Pension Costs

Total periodic pension cost in a given period  
= Sum of components of periodic pension costs

Or

Total periodic pension cost in a given period  
= Change (i.e. increase/decrease) in the Net pension liability or asset adjusted for employer contributions

Total Net periodic pension cost  
= (Ending Funded Status\* – Beginning Funded Status\*) – Employer Contribution

\*Pension liability is treated as a negative

#### NOTE:

- In case of net pension liability (asset) → Funded status is negative (positive).
- Unlike employer's contributions, which increase plan's assets, cash payments made out of DB plan to a retiree have **no effect** on net pension liability or asset because these cash payments reduce plan assets and plan obligations in an equal amount.

### 2.4.4) Periodic Pension Costs Recognized in P&L vs. OCI

For the purpose of comparisons,

A. P&L of a company using U.S. GAAP can be adjusted by

- Including past service costs incur during the period in P&L.
- Excluding amortization of past service costs incur in previous periods.
- Including interest income calculated using discount rate rather than expected rate of return.

B. Or a company's Comprehensive Income (i.e. Net income from P&L + OCI) can be used.

### 2.4.5) Classification of Periodic Pension Costs Recognized in P&L

For analytical purposes:

- Only **current service cost** component of pension expense should be treated as an **operating expense** in P&L.
- **Interest expense** should be treated as **non-operating** expense in P&L → it should be treated as financing expense as it is associated with pension liability, which is considered equivalent to borrowing from employees.
- The **actual return** on plan assets should be treated as **non-operating income** in P&L → it should be treated as financing income as it is similar to returns earned on other financial assets.

#### NOTE:

The reclassification of interest expense would not change Net Income.

#### Economic Expense (income) for the pension plan:

Economic expense (income) for the pension plan can be estimated by using the actual return instead of expected return on plan assets.

#### Adjusted Total P&L pension expense (income)

= Current service costs + interest costs + (-) actuarial losses (actuarial gains) + past service costs (or plan amendments) – (+) Actual return (loss) on plan assets

Or

#### Adjusted Total P&L pension expense (income)

= Reported Total P&L pension expense (income) + Expected return on plan assets – Actual return on plan assets

**Adjusted Pre-tax Income** = Reported Pre-tax income + (Actual return on plan assets – Expected return on plan assets)

Or

**Adjusted Pre-tax Income** = Reported Pre-tax income + Total reported pension and other post-retirement benefits - Current service costs - Interest expense component of pension cost + Actual return on plan assets

- All expenses are reported with positive sign.

**Adjusted Net Operating Expenses** = Reported Net operating expenses  
 – Total reported pension and other post-retirement benefits + Current service costs

- All figures are reported with positive sign.

**Adjusted Interest Expense** = Reported Interest expense + Interest expense component of pension cost

- All figures are reported with positive sign.

**Adjusted Interest and investment Income**

= Reported Interest and investment income + Actual return on plan assets

**Practice: Example 5,**  
**Volume 2, Reading 14.**



### 2.4.6) Cash Flow Information

- In a **funded** plan, cash flows occur when the company makes contributions to the plan.
- In an **unfunded** plan (e.g. Post-employment health care plan), cash flows occur when the benefits are paid.

**CASE 1:** If a sponsoring company's periodic contributions to a plan **exceed** the total pension expense of the period → then the excess (difference) should be treated as a reduction to the pension liability (obligation).

- The excess (net of tax) should be treated as **increase in financing cash outflows** and **increase in operating cash inflows**. However, this adjustment is made only when the excess is of material amount.

**CASE 2:** If a sponsoring company's periodic contributions to a plan are **less** than the total pension expense of the period, → then the expense (difference) should be treated as a source of borrowing.

- The difference (net of tax) should be treated as **increase in financing cash inflows** and **decrease in operating cash inflows**. However, this adjustment is made only when the excess is of material amount.

#### NOTE:

When Net Income is reconciled to cash flow from operating activities, net periodic benefit cost (non-cash expense) is added back to Net Income while the contributions (cash outflow) are deducted from Net Income.

**Practice: Example 6,**  
**Volume 2, Reading 14.**



## 3. SHARE-BASED COMPENSATION

Objectives behind Employee Compensation:

- To satisfy employees' needs for liquidity.
- To retain employees.
- To motivate employees.

Common components of employee compensation packages include:

- 1) Salary:** It meets the liquidity needs of an employee. It is a short-term employee benefit.
- 2) Bonuses:** They are used to motivate and reward employees on the basis of short or long term performance or achieving goals related to performance. They are considered as short-term employee benefits.
- 3) Other non-monetary benefits:** They include medical care, housing, cars. They are considered as short-term employee benefits.
- 4) Share-based compensation:** It includes:

- Stock (equity-settled)
- Stock options (equity-settled)
- Stock appreciation rights (cash-settled)
- Phantom shares (cash-settled)

- Under both IFRS and U.S. GAAP, companies are **required** to disclose key components of management compensation in their annual report (or proxy statement).

#### Advantages of Share-Based Compensation:

- It helps to motivate employees and align employees' interests with those of the shareholders.
- It requires no cash outlays. However, compensation expense is recorded which results in decrease in earnings.

#### Disadvantages of Share-Based Compensation:

- Employees receiving share-based compensation have limited influence over the company's market

value, so share-based compensation does not necessarily incentivize employees.

- When employees become shareholders of the company, they may become risk averse to avoid loss in individual wealth and as a result may prefer less risky, less profitable projects.
- In contrast, option based compensation may make employees to take excessive risk and as a result may prefer to invest in more risky projects.
- When share-based compensation is granted to employees, it dilutes the ownership of existing shareholders.

### Accounting Treatment of Salary & Bonuses:

- Compensation expense is recorded in the period in which salary is earned by the employees.
  - Compensation expense is reported in sales, general and administrative expenses in P&L.
- Salary or bonus expense is recorded when employee has **earned** it.

### Accounting Treatment of Share-based Compensation:

Accounting for share-based compensation is similar under IFRS and U.S. GAAP. Under both IFRS and U.S. GAAP,

- Compensation expense is recorded in the period in which that compensation is earned by the employees.
- Fair value of the share-based compensation granted is used to measure the value of employees' services i.e.  

$$\text{Compensation expense} = \text{Fair value of the share-based compensation granted}$$

**Disclosures required:** Under both IFRS and U.S. GAAP, companies are **required** to disclose the following information related to the share-based compensation:

- 1) The nature and extent of share-based compensation arrangements during the period.
- 2) Method used to determine the fair value of a share-based compensation.
- 3) The effect of share-based compensation on the company's income for the period and on its financial position.

## 3.1 Stock Grants

Types of Stock grants:

**1) Outright Stocks grants:** Under outright stock grants,

Compensation expense = Fair value\* of the stock on the Grant Date

\*Generally, market value at grant date.

- Compensation expense is allocated over the service period of the employee.

**2) Restricted Stock Grant:** In restricted stock grants, stocks are granted to employees with certain restrictions i.e. employees are required to remain with the company for a specified period, employees are required to achieve certain performance goals etc. Under restricted stock grants,

Compensation expense = Fair value\* of the stock on the Grant Date

\*Generally, market value at grant date.

- Compensation expense is allocated over the service period of the employee.

### 3) Stock grants that are contingent upon performance:

These shares are granted when certain performance goals are met by the employees. Under such stock grants,

- The amount of grant is based on performance measures (except for change in stock price) i.e. accounting earnings or ROA.

Compensation expense = Fair value\* of the stock on the Grant Date

\*Generally, market value at grant date.

- Compensation expense is allocated over the service period of the employee.

**Disadvantage:** It can provide incentives to managers to manipulate accounting numbers.

**Important to Note:** Accounting treatment of stock grants is same under both IFRS and U.S. GAAP.

## 3.2 Stock Options

Like stock grants, in stock option grants (under both IFRS and U.S. GAAP),

Compensation expense = Fair value of the stock on the Grant Date

- However, unlike stock grants, in option grants (under both IFRS and U.S. GAAP), companies are **required** to estimate the fair value of option grants using an appropriate valuation model e.g. black-Scholes option pricing model, binomial model etc.
- No specific method is preferred under IFRS and U.S. GAAP. However, the method should have the following properties:
  - The method should be consistent with fair value measurement.
  - The method should be based on sound financial economic theory.
  - The method should reflect all the important characteristics of the compensation.

**Option pricing model is based on the following inputs:**

1. Exercise price: It is known at the time of grant.
2. Stock price at the grant date.
3. Expected term/life of each option grant:

- It is a highly subjective measure and is based on assumptions i.e. employee turnover.
- Usually, it is shorter than the option's expiration period.

4. Expected stock price volatility: It is a highly subjective measure.
5. Expected dividends/dividend yield.
6. Risk-free rate.
7. Estimated number of options that will be granted.

**Effects of changes in inputs on the Estimated fair value of options:**

Inputs that lead to increase in Estimated Fair Value and higher compensation expense:

- Higher volatility
- Longer estimated life
- Higher risk-free rate (i.e. increasing interest rates)
- Higher share price.
- Lower assumed dividend yield

Inputs that lead to decrease in Estimated Fair Value and lower compensation expense:

- Lower volatility
- Shorter estimated life
- Lower risk-free rate (i.e. decreasing interest rates)
- Lower share price.
- Higher assumed dividend yield

**Definitions of Important Dates associated with accounting for stock options:**

**Grant date:** It is the date when the options are granted to employees.

**Service Period:** It is usually the period between the grant date and the vesting date.

**Vesting Date:** It is the date on which the employees can first exercise stock options. The vesting can be immediate or over a future period.

**Exercise Date:** It is the date when the options are actually exercised by the employees and are converted into stock.

**Accounting Treatment of Stock Options (IFRS & U.S. GAAP):**

- Compensation expense related to option grant is reported at fair value of the option on the grant date based on the number of options that are expected to vest.
- When the share-based payments vest immediately

i.e. require no further periods of service, then compensation expense is recognized in the income statement on the **grant date**.

- When the share-based compensations vest over a future period, then compensation expense is recognized in the income statement and is allocated over the **service period**.
- When the share-based compensation is contingent upon meeting performance goals or upon certain market conditions (e.g. target share price), then compensation expense is recognized in the income statement and allocated over the **service period**.
- When options are not exercised, they may expire at some pre-specified future date i.e. 5-10 years from the grant date.

**Measurement date of Compensation expense:**

- When both the number of shares and option price are known at the time options are granted, then compensation expense is measured at the grant date.
- When value of options depends on such factors that are not known at grant date, then compensation expense is measured at the exercise date.

**NOTE:**

No compensation expense is recorded in case of following three situations:

- For discounts on stocks.
- When option is exercised.
- When stocks are sold.

**Effect of option expense on financial statements:** When option expense is recognized,

- Retained earnings reduce by that amount.
- Paid-in capital increases by that amount.
- Thus, no net effect on total equity of a company.

**Example:**

Suppose,

- Stock Options Grant Date → Jan 1, 2008
- Vesting Period = 2.5 years
- Unrecognized non-vested compensation expense as at Dec 31, 2008 = \$500 million

**Annual Compensation expense recognized in the Income statement for the period 2010 is estimated as follows:**

On Jan 1, 2009, 1 year of the vesting period has passed. Thus,

$$\text{Remaining vesting period} = 1.5 \text{ years}$$

For the year 2009,

*Compensation expense recognized*

$$= \frac{\text{Unrecognized non-vested compensation expense}}{\text{Remaining vesting period}}$$

$$= \$500 \text{ million} \div 1.5 \text{ years} = \$333.33 \text{ million}$$

For the year 2010,

$$\text{Compensation expense recognized} = \$500 - \$333.33$$

$$= \$166.67 \text{ million}$$

**Practice: Example 7, Volume 2, Reading 14.**



### 3.3 Other Types of Share-based Compensation

These include:

**1) Stock Appreciation Rights (SARs):** In SARs, employee compensation is based on increase in a company's share price. The company can pay appreciation in any of the following forms:

- Cash
- Equity
- Combination of cash and equity

#### **Advantages of Stock Appreciation Rights (SARs):**

- SARs help to motivate employees and align their interests with shareholders.
- In SARs, employees have limited downside risk but unlimited upside potential similar to stock options. Thus, they have less potential to make employees risk-averse.
- Since shares are not issued in SARs, they do not dilute ownership of existing shareholders.

**Disadvantages of Stock Appreciation Rights (SARs):** SARs involve a current-period cash outflow.

#### **Accounting Treatment of SARs (Under both IFRS and U.S. GAAP):**

- SARs are valued at Fair value.
- Compensation expense is allocated over the service period of the employee in the Income statement.

**2) Phantom Share Plans:** In phantom share plans, compensation is based on the performance of hypothetical stock instead of actual stock of a company.

- Unlike SARs, phantom shares can be used by private companies or business units within a company that are not publicly traded or by highly illiquid companies.

**Practice: CFA Institute's Curriculum End of Chapter Questions & FinQuiz Question-bank (Item-sets + Questions)**

