## 1. INTRODUCTION

Companies invest in the debt and equity securities of other companies for various reasons, for example, to:

- Diversify their asset base.
- Enter new markets.
- Obtain competitive advantages.
- Achieve additional profitability.

***Example of Debt Securities:***

- Commercial paper
- Corporate and government bonds and notes
- Redeemable preferred stock
- Asset-backed securities

***Example of Equity Securities:***

- Common stock
- Non-redeemable preferred stock

Factors that determine the percentage of equity ownership a company acquires in an investee include:

- Resources available
- Ability to acquire the shares
- Desired level of influence or control

## 2. BASIC CORPORATE INVESTMENT CATEGORIES

Investments in marketable debt and equity securities can be categorized as follows:

1) Investments in financial assets in which the investor has no significant influence or control over the operations of the investee (typically less than 20% ownership interest*).
2) Investments in associates in which the investor can exert significant influence but not control over the investee (typically between 20% -50% ownership interest).
3) Joint ventures where control is shared by two or more entities.
4) Business combinations i.e. investments in subsidiaries in which the investor has control over the investee. (Greater than 50% ownership interest).

***** Ownership percentage is only a guideline; the investment classification depends on the investor's ability to influence or control the investee.

| | In Financial Assets | In Associates | Business Combinations | In Joint Venture |
|---|---|---|---|---|
| **Influence** | Not significant | Significant | Controlling | Shared control |
| **Typical % interest** | Usually < 20% | Usually 20% to 50% | Usually > 50% or other indications of control | |
| **Current Financial Reporting (prior to IFRS 9 taking effect)** | Classified as:<br>▪ Held to maturity<br>▪ Available for sale<br>▪ Fair value through profit or loss (held for trading or designated as fair value)<br>▪ Loans and receivables | Equity method | Consolidation | IFRS: Equity method or proportionate consolidation |
| **Applicable IFRS** | IAS 39 | IAS 28 | IAS 27 | IAS 31 (replaced by IFRS 11) |
| **U.S.GAAP** | FASB ASC Topic 320 | FASB ASC Topic 323 | FASB ASC Topics 805 and 810 | FASB ASC Topic 323 |
| **New Financial Reporting (post IFRS 9 taking** | Classified as:<br>▪ Fair value through profit or | Equity method | Consolidation | IFRS: Equity method |

| | In Financial Assets | In Associates | Business Combinations | In Joint Venture |
|---|---|---|---|---|
| **effect)** | loss<br>▪ Fair value through other comprehensive income<br>▪ Amortized cost | | | |
| **Applicable IFRS** | IFRS 9 | IAS 28 | IAS 27<br>IFRS 3<br>IFRS 10 | IFRS 11<br>IFRS 12<br>IAS 28 |
| **U.S.GAAP** | FASB ASC Topic 320 | FASB ASC Topic 323 | FASB ASC Topics 805 and 810 | FASB ASC Topic 323 |

Source: Exhibit 1, Volume 2, Reading 14.

## 3. INVESTMENTS IN FINANCIAL ASSETS: STANDARDS IAS 39 (AS OF DECEMBER 2012)

Investments in which the investor cannot exert significant influence or control over the operations of the investee are called ***passive investments***. The accounting for investments in financial assets is similar under both IFRS and U.S.GAAP.

- Initially, the passive investments are recognized at fair value on the balance sheet.
- Dividend and interest income are reported in the income statement, irrespective of their classification.

The four basic classifications of investments in financial assets in IFRS are as follows:

1) Held-to-maturity
2) Fair value through profit or loss: These include
   i. Financial assets held for trading
   ii. Financial assets designated as carried at fair value through profit or loss

   **Note:** Under U.S.GAAP the classification is based on legal form and special guidance exists for some financial assets.
3) Available-for-sale
4) Loans and receivables

### 3.1 Held-to-Maturity

Held-to-maturity investments are financial assets that have:

- Fixed or determinable payments;
- Fixed maturities (debt securities);

**Under both IFRS and U.S.GAAP:**

- The investor is allowed to classify financial asset as held-to-maturity only if it has a positive intent and ability to hold the security to maturity.
- If during the current or two preceding financial reporting years the investor has sold or reclassified more than insignificant amount of held-to-maturity investments, then it is not allowed to classify any financial assets as held-to-maturity, unless the sale or reclassification meets certain criteria.

**Accounting Treatment under IFRS:**

- Initially, held-to-maturity securities are recognized at Fair value.
- Subsequent to initial recognition, held-to-maturity securities are reported at amortized cost using effective interest rate method at each reporting date i.e.

**Amortized cost = Original Cost of the Debt Security + Discount – Premium**

- Any discount (par value> fair value) or premium (par value < fair value) that exists at the time of purchase is amortized over the life of the security.
  - Discount occurs when the stated interest rate < the effective rate.
  - Premium occurs when the stated interest rate > the effective rate.
- Any interest payments received are adjusted for amortization and are reported as interest income in the income statement.
- Any realized gains or losses arising from the sale of security before maturity are recognized in income statement of the period.
- Transaction costs are included in initial fair value for investments that are not classified as fair value

through profit or loss.

**NOTE:**

- Under U.S.GAAP, contractual cash flows over the asset's contractual life are used to calculate effective interest rate. Contractual cash flows are only used if it is difficult to reliably estimate the expected cash flows over the expected life of the security.
- Under IFRS, estimated cash flows over the expected life of the asset are used to calculate effective interest rate.

**Accounting Treatment under U.S.GAAP:**

- Initially, held-to-maturity securities are recognized at initial price paid on the balance sheet. Typically, initial fair value is the same as the initial price paid.
- Subsequent to initial recognition, held-to-maturity securities are reported at amortized cost using effective interest rate method at each reporting date.
- Any discount (par value> fair value) or premium (par value < fair value) that exists at the time of purchase is amortized over the life of the security.
- Any interest payments received are adjusted for amortization and are reported as interest income in income statement.
- Any realized gains or losses arising from the sale of security before maturity are recognized in income statement of the period.

**Summary of Accounting Treatment of Held-to-Maturity:**

1. Balance sheet value = Amortized cost of Bond
2. Interest Revenue = Beginning value of Bond (Issuance Price) × Market interest rate at issuance.
   - Interest Revenue is recognized in the Income Statement.
3. Amortized Discount = Interest Revenue – Coupon Payment
4. Amortized Premium = Coupon Payment - Interest Revenue
5. Year End carrying value of Bond = Beginning value of Bond (Issuance Price) + Amortized Discount - Amortized Premium
   **Note:** Year End carrying value of Bond is recognized on the Balance Sheet.
6. Realized Gain or loss = Sale price of Bond – Carrying value of bond at year end
   **Note:** Realized Gain or loss is recognized in the Income Statement.

## 3.2 Fair Value through Profit or Loss

### 3.2.1) Held-for-Trading

Held-for-trading investments are debt or equity securities that are acquired with the intent to sell them in the near term.

**Accounting Treatment:**

- Initially, held-for-Trading securities are reported at **Fair value** on the balance sheet.
- No transaction costs are included in fair value; neither initially nor subsequently.
- At each reporting date, these investments are re-measured and reported at fair value.
- Any unrealized gains or losses associated with changes in fair value are reported in income statement.
- Interest received on debt securities and dividends received on equity securities are reported in income statement.

### 3.2.2) Designated at Fair Value

Under both IFRS and U.S.GAAP, companies are allowed to initially designate investments at fair value that might otherwise be classified as available-for-sale or held-to-maturity.

**Accounting Treatment:**

- Initially, designated at fair value securities are reported at **Fair value** on the balance sheet.
- No transaction costs are included in fair value; neither initially nor subsequently.
- At each reporting date, these investments are re-measured and reported at fair value.
- Any unrealized gains or losses arising from changes in fair value are reported in income statement.
- Interest received on debt securities and dividends received on equity securities are reported in income statement.

**Summary of Accounting Treatment**

| | Income Statement | Balance Sheet | Statement of Shareholder s' Equity |
|---|---|---|---|
| Held-to-maturity | ▪ Interest income = Market rate × Initial fair value of a debt security<br>*Or* | ▪ Initially, reported at amortized cost which is equal to Fair value – | N/A |

| | Income Statement | Balance Sheet | Statement of Shareholder s' Equity |
|---|---|---|---|
| | Interest income = Interest payment – Amortization<br>Where,<br>▸ Interest payment = (Coupon rate × Par value of debt security)<br>▸ Amortization = Interest payment – Interest income<br><br>▪ ***If debt security is sold***: Realized gain or loss reported on income statement = Selling price – Carrying value or Amortized cost | ▪ Amortization<br>▪ Subsequently, the security is reported at amortized cost at the subsequent reporting date on the balance sheet. | |
| Held for trading security | ▪ Interest income = Market rate × Initial fair value of a debt security<br>▪ Unrealized gain or loss = Fair value at the end of Year t – Amortized Cost at end of Year t<br>***If debt security is sold:***<br>▪ Realized gain or loss reported on income statement = Selling price – Recorded fair value | ▪ Initially, reported at fair value.<br>▪ Subsequently, the security is reported at fair value at subsequent reporting date on the balance sheet. | |
| Designated at fair value | ▪ Interest income = Market rate × Initial fair value of a debt security<br>▪ Unrealized gain or loss = Fair value at the end of Year t – Amortized Cost at end of Year t<br>***If debt security is sold:***<br>▪ Realized gain or loss reported on income statement = Selling price – Recorded fair value | ▪ Reported at fair value at the end of Year t<br>▪ Subsequently, the security is reported at fair value at the subsequent reporting date on the balance sheet. | |
| Available-for-sale | ▪ Interest income = Market rate × Initial fair value of a debt | ▪ Reported at fair value at the end of Year t<br>▪ Subsequently, the | Unrealized gain or loss (net of tax) = Fair value at the end of Year t – Amortized |

| | Income Statement | Balance Sheet | Statement of Shareholder's' Equity |
|---|---|---|---|
| | security<br>***<u>If debt security is sold:</u>***<br>▪ Cumulative unrealized gain or loss is removed from other comprehensive income and entire gain or loss is recognized in the profit & loss statement.<br>Where,<br>Realized gain or loss reported on income statement = (Selling price – Recorded fair value) + Unrealized gain or loss | security is reported at fair value at the subsequent reporting date on the balance sheet. | Cost at end of Year t<br>• Unrealized gain or loss (net of tax) is reported as other comprehensive income. |

**Note:** If investment is in equity securities:

- Held-to-maturity option does not exist;
- There is no amortization;
- Instead of interest income, there would be dividend income (if any).

## 3.3 Available-for-Sale

Available for sale investments are debt and equity securities that the investor is *willing* to sell but not actively planning to sell.

**Accounting Treatment:**

- Initially, available for sale securities are recognized at **Fair value** on the balance sheet.
- Subsequently, these investments are re-measured and reported at fair value at each reporting date.
- Any unrealized gains or losses (net of taxes) resulting from changes in fair value are reported in Equity as Other Comprehensive Income.

  Unrealized gain or loss at the end of reporting period = Fair value – carrying amount at the end of reporting period
- If the security is sold, the cumulative gains or losses previously recognized in Other Comprehensive Income are removed from other Comprehensive Income and reported on the income statement.
- Interest received on debt securities and dividends received on equity securities are reported in income statement.

**Accounting Treatment of Available for Sale *DEBT SECURITIES*:**

**Under IFRS:** Total change in Fair value of an available for sale ***debt security*** is divided into two components:

a) Any portion related to Foreign Exchange gains & losses is recognized on the income statement.
b) The remaining portion is recognized in Other Comprehensive Income.

**Under U.S.GAAP:** Total change in fair value of available for sale ***debt securities*** (including foreign exchange gains & losses) is included in Other Comprehensive Income.

**Accounting Treatment of Available for Sale *EQUITY SECURITIES*:**

Under both IFRS and U.S.GAAP, total change in fair value of available for sale ***equity securities*** (including foreign exchange gains & losses) is included in Other Comprehensive Income.

**Note:** Under IAS 21, only a debt security (not equity security) is defined as a monetary item because it pays fixed or determinable number of units of currency.

## 3.4 Loans and Receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments. Unlike IFRS, U.S.GAAP relies on the legal form for the classification of debt securities.

Under U.S.GAAP, loans and receivables that meet the definition of debt security are generally classified in the following three forms:

1) Held-for-trading
2) Available-for-sale or
3) Held-to-maturity

**Accounting Treatment:**

- Loans and receivables classified as held-to-maturity are recognized at amortized cost on the balance sheet.
- Loans and receivables classified as held-for-trading and available-for-sale securities recognized at fair value on the balance sheet.

## 3.5 Reclassification of Investments

**Under IFRS:**

1) **Reclassification of Securities Designated at Fair Value:** Companies are not permitted to reclassify securities *into or out of* the designated at Fair Value category.
   **Exceptions:** under IFRS, companies are allowed to reclassify a financial asset if it is no longer held for purpose of selling in the near term. Upon reclassification,

- The financial asset is measured at its Fair value.
- Any gains/losses are recognized in the income statement.
- The fair value on the date of reclassification becomes the asset's new cost or amortized cost.

2) **Reclassification of Held for Trading Securities:** Companies are NOT permitted to reclassify securities *out of* the held for trading category.
3) **Reclassification of Held-to-maturity (Debt) Securities:** Companies can reclassify held-to-maturity securities as available-for-sale if a company's intention or ability to hold the security till maturity changes. However, after reclassification, the holder is prohibited from classifying other debt securities as held-to-maturity or other held-to-maturity debt to be reclassified as available-for-sale.
   Upon reclassification to Available-for-sale:

- The security is re-measured at Fair value.
- The difference between its carrying amount (amortized cost) and fair value is recognized in Other Comprehensive Income.

4) **Reclassification of Available for Sale (Debt) Securities:** Companies can reclassify debt securities initially recognized as Available-for-Sale to Held-to-maturity if its intention or ability to hold security changes. Upon reclassification,

- The fair value carrying amount of the security at the time of reclassification becomes its new amortized cost.
- Any previous gain/loss that was recognized in Other Comprehensive Income is amortized over the remaining life of the security using the effective interest rate method.
- Any difference between the new amortized cost of the security and its maturity value is amortized over the remaining life of the security using the effective interest rate method.
- The debt instruments may be reclassified from held for trading or available-for-sale to loans and receivables provided that the company expects to hold them for foreseeable future.
- If there is no reliable measure of fair value and no evidence of improvement, financial assets classified as available-for-sale may be measured at cost. However, if a reliable fair value measure becomes available, the financial asset must be re-measured at fair value with changes in value recognized in other comprehensive income.

**Under U.S.GAAP:**

1) **Reclassification of Securities Designated at Fair Value:** Companies are allowed to reclassify securities into or out of the designated at Fair Value category.
2) **Reclassification of Held for Trading Securities:** Companies are allowed to reclassify securities in or out of the held for trading category.

i. When a security that is initially recognized as held-for-trading is reclassified to available for sale category, any unrealized gains/losses arising from difference between its carrying amount and current fair value are recognized in the income statement.
ii. When a security is transferred **into** the Held-for-Trading category, any unrealized gains/losses arising from the difference between its carrying amount and current fair value are recognized in the income statement.

3) **Reclassification of Held-to-maturity (Debt) Securities:** Companies can reclassify held-to-maturity securities as available-for-sale if its intention or ability to hold the security until maturity changes. Upon reclassification of debt security to Available for Sale category:

- The unrealized holding gains/losses arising from difference between fair value & amortized cost at the date of reclassification are recognized in Other Comprehensive Income.

**4) Reclassification of Available for Sale (Debt) Securities:**

i. When a security initially recognized as Available-for-Sale, is reclassified to other category, the cumulative amount of gains/losses previously recognized in Other Comprehensive Income is recognized in the income statement on the date of reclassification.
ii. When a debt security is reclassified from available-for-sale to Held-to-maturity category, the cumulative amount of gains/losses previously recognized in Other Comprehensive Income is amortized over the remaining life of the security as an adjustment of yield (interest income).

## 3.6 Impairments

A financial asset (debt or equity) is impaired when *the carrying Amount of an asset is permanently > Recoverable Amount of an asset.*

**Under IFRS:**

- At each reporting period, *Held-to-maturity* and *Available-for-Sale* financial assets are assessed for impairment. Held-for-Trading securities and investments designated are NOT assessed for impairment because they are reported at fair value and any impairment loss is already recognized in income statement immediately.
- Any current impairment is recognized in profit or loss immediately.

**Held-to-Maturity (under IFRS):**
A debt security is considered impaired if one or more loss events occur after its initial recognition. Such loss events include:

- Significant financial difficulty of the issuer.
- Default or delinquency in interest or principal payments.
- Restructuring of debt due to financial difficulty faced by the issuer.
- Bankruptcy or other financial reorganization of the borrower.

Following events are not considered loss events:

- The disappearance of active market for the entity's securities.
- A downgrade of an entity's credit rating or a decline in fair value of a security below its cost or amortized cost.

***Impairment loss is measured as follows:***

Impairment loss = Security's carrying value – PV of security's estimated future cash flows discounted at the security's original (initial) effective interest rate

**Accounting Treatment of Impairment loss under IFRS:**

1) The carrying amount of the security is reduced either directly or by increasing the allowance account.
2) The loss is recognized in income statement.
3) If in subsequent periods the impairment loss decreases, previously recognized loss can either be decreased directly by increasing the carrying amount of security or by reducing the allowance account.
4) The amount of reversal of loss is recognized in income statement.

**Available for sale (both debt & equity Securities) under IFRS:**
For equity securities examples of loss events may impair the security include:

- Significant changes in the technological, market, economic and/or legal environments that have an adverse impact on the investee, which indicate that the initial cost of the equity investment may not be recovered.
- A significant or prolonged decline in the fair value of an equity investment below its cost.

**Accounting Treatment of Impairment loss under IFRS:**

1) The cumulative loss that had been recognized in Other Comprehensive Income is reclassified from equity to income statement as a reclassification adjustment.
   *Where,*
   Cumulative loss = Acquisition cost (net of any principal repayment & amortization) – current fair value – Impairment loss previously recognized in income statement (if any)
2) Impairment losses on Available for Sale Equity Securities ***cannot*** be reversed.
3) Impairment losses on Available for Sale Debt Securities can be reversed and the amount of reversal is recognized in income statement.

**Under U.S.GAAP:** Available for sale and held-to-maturity securities are considered impaired only when the decline in their value is other than temporary.

**Accounting Treatment of Impairment loss for Debt Securities and for Available for sale (both debt & equity Securities):**

- When a decline in value is other than temporary, the carrying value of security is written down to its fair value and the fair value becomes its new cost basis.
- The amount of the write-down is treated as a ***Realized*** loss and reported on the income statement.
- Impairment losses on Available for Sale Equity and/or Debt Securities ***cannot*** be reversed.
- Subsequent increases in fair value (and decreases if other than temporary) can be treated as unrealized gains or losses and included in Other Comprehensive Income.

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

## 4. INVESTMENTS IN FINANCIAL ASSETS: IFRS 9 (AS OF DECEMBER 2012)

The new standard i.e. IFRS 9 is not based on portfolio approach of the current standard and it does not use terms available-for-sale and held-to-maturity. Under the new standard, there are three classifications for financial assets:

1) Fair value through profit or loss (FVPL)
2) Fair value through other comprehensive income (FVOCI)
3) Amortized cost

### 4.1 Classification and Measurement

- When initially acquired, all financial assets are measured at fair value.
- Subsequently, financial assets are measured at either fair value or amortized cost.

Under the new standard, financial assets can be measured at amortized cost only if they meet the following two criteria:

1) *Business model tests:* The financial assets are being held to collect contractual cash flows.
2) *Cash flow characteristic test:* The contractual cash flows are solely payments of principal and interest on principal.

However, management is allowed to use "fair value through profit or loss" option to avoid an accounting mismatch. Accounting mismatch is an inconsistency that results from differences in the measurement bases for assets and liabilities.

- Debt instruments are measured either at amortized cost or at fair value through profit or loss.
- Equity instruments are measured at fair value through profit or loss (FVPL) or at fair value through other comprehensive income (FVOCI).
  - Equity investments held-for-trading must be measured at fair value through profit or loss (FVPL).
  - Other equity investments can be measured at FVPL or FVOCI; however, once measured at FVPL or FVOCI, the company cannot reverse the choice.
- Financial assets that are derivatives are measured at fair value through profit or loss (except for hedging instruments).
- If the asset falls within the scope of this standard, then embedded derivatives are treated as the hybrid contract.
- Financial liabilities other than derivatives are initially recognized at fair value and subsequently measured at amortized cost (i.e. initial amount net of principal repayments adjusted by the amortization of any difference between the initial amount and the maturing amount using the effective interest method).

### 4.2 Reclassification of Investments

Under the new standard, companies are not allowed to reclassify equity instruments because the initial classification of FVPL and FVOCI is irrevocable. However, if there is a change in business model for the financial assets (objective for holding the financial assets), then debt instruments can be reclassified from FVPL to amortized cost (or vice versa). On reclassification, prior periods are not restated.

- If the financial asset is reclassified from amortized cost to FVPL, the asset is measured at fair value with gain or loss recognized in profit or loss.
- If the financial asset is reclassified from FVPL to amortized cost, the fair value at the reclassification date becomes the carrying amount.

## 5. INVESTMENTS IN ASSOCIATES AND JOINT VENTURES

Joint ventures are arrangements in which the parties with joint control have rights to the net assets of the arrangement. Joint ventures are required to use equity method under IAS 28. They can use proportionate consolidation in rare cases under IFRS and U.S. GAAP.

Under both IFRS and U.S.GAAP:

- The investor is presumed to have significant influence, but no control, over the investee's business activities when an investor holds 20 to 50% of the voting rights of an associate (investee), either directly or indirectly (i.e. through subsidiaries). In this case, it is preferred to use equity method of accounting because it reflects the economic reality of this relationship and provides a more objective basis for reporting investment income.
- The investor is presumed to have neither influence nor control over the investee's business activities when an investor holds less than 20% of the voting rights of an associate (investee), either directly or indirectly (i.e. through subsidiaries).

Factors that may indicate significant influence include:

- Representation on the board of directors;
- Participation in the policy-making process;
- Material transactions between the investor and the investee;
- Interchange of managerial personnel; or
- Technological dependency
- Currently exercisable or convertible warrants, call options, or convertible securities owned by the investor that gives the investor additional voting power or reduce another party's voting power over the financial and operating policies of the investee. By contrast, under U.S. GAAP, an investor's voting stock interest is determined only on the basis of voting shares outstanding at the time of purchase.

**Types of Joint Ventures include:**

a) Partnerships
b) Limited liability companies (corporations)
c) Other legal forms (unincorporated associations).

Under IFRS, common characteristics of joint ventures are as follows:

1) A contractual arrangement exists between two or more ventures.
2) A contractual arrangement establishes joint control.

Under both IFRS and U.S.GAAP, companies are required to use the equity method of accounting for joint ventures.

### 5.1 Equity Method of Accounting: Basic Principles

Equity Method of Accounting is used for investments in associates. Equity method is also known as "***One-line Consolidation***". The equity method provides a more objective basis for reporting investment income because the investor can potentially influence the timing of dividend distributions.

**Under equity method of accounting:**

- The investor's proportionate ownership interest in the asset and liabilities of the investee is disclosed as a single line item (i.e. net assets) on its balance sheet.
- Equity method investments are classified as non-current assets on the balance sheet and the carrying amount of those investments must be separately disclosed on the balance sheet.
- The investor's share of the revenues and expenses and profit and losses of the investee is disclosed as a single line item on its income statement.
- Dividends or other distributions received from the investee are not reported in the investor's income statement.
- Initially, the equity investment is recorded at cost on the investor's balance sheet.
- In subsequent periods, the carrying amount of the investment is adjusted for two things i.e.
  i. Investor's proportionate share of the investee's earnings or losses.
  ii. Dividends or other distributions received from the investee.

**Total value of the investment = Original investment + (Earnings – Dividends)**

- If the investment value reduces to zero, the investor discontinues using equity method and no further losses are recorded. If in subsequent period investee reports profits then investor can resume using the equity method provided that the investor's share of the profits equals the share of losses not recognized during the suspension of the equity method.

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

## 5.2 Investment Costs that Exceed the Book Value of the Investee

There are two types of cost models used to report property, plant and equipment (PPE):

1) ***Historical cost model:*** In this method, long-lived assets are reported at historical cost as follows:
**Historical cost – Accumulated Depreciation or Amortization – Impairment loss**
2) ***Revaluation cost model:*** In this method, long-lived assets are reported at Fair value as follows:
**Fair value – Accumulated depreciation or amortization – Impairment losses**
   - Under U.S GAAP, companies are allowed to use only historical cost model.
   - Under IFRS, companies can use both models.

When the cost of the Investment > investor's proportionate share of the investee's (associate's) Net Identifiable tangible and intangible assets.

- The difference is first allocated to specific assets using fair values.
- These differences are then amortized to the investor's proportionate share of the investee's profit or loss over the economic lives of the assets whose fair values exceed book values.

Under both IFRS and U.S.GAAP,

**Goodwill = Cost of acquisition – Investor's share of the fair value of the Net Identifiable assets**

- Goodwill is included in the carrying amount of the investment and is not reported separately.
- Goodwill is not amortized; rather, it is assessed for impairment on a regular basis, and written down for any identified impairment.

**Note:** After initial recognition, a company can choose to use either a cost model or a revaluation model to measure its PP&E. Under the revaluation model, PP&E whose fair value can be measured reliably can be carried at a revalued amount i.e. fair value at the date of the revaluation less any subsequent accumulated depreciation.

| | |
|---|---|
| Purchase price | xxx |
| ***Less:*** (% of Ownership Interest × Book Value of Investee's Net Assets) | (xxx) |
| = **Excess Purchase Price** | **xxx** |
| ***Less:*** Attributable to Net Assets: | |
| -Plant & Equipment (% of Ownership Interest × difference between book value & fair value) | (xxx) |
| -Land (% of Ownership Interest × difference between book value & fair value) | (xxx) |
| **= Residual Amount (Treated as Goodwill)** | **xxx** |

When the investor's share of the fair value of the associate's net assets > cost of investment:

- Carrying amount of the investment is reduced by the difference between investor's share of the fair value of the associate's net assets and cost of investment.
- Difference between investor's share of the fair value of the associate's net assets and cost of investment is included as income in the determination of the investor's share of the associate's profit or loss in the period in which the investment is acquired.

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

## 5.3 Amortization of Excess Purchase Price

**Investment in associate:**

| | |
|---|---|
| Purchase price | xxx |
| ***Add:*** *Investor's share of Investee's Net Income* (% of Ownership Interest × Investee's net income) | xxx |
| ***Less:*** Dividends received (% of Ownership Interest × Dividends paid) | (xxx) |
| ***Less:*** Amortization of excess purchase price attributable to plant & equipment (Amount attributable to PP&E* ÷ Remaining life of PP&E) | (xxx) |
| **= Balance in investment in Investee** | **xxx** |

Where,

*Amount attributable to Plant & Equipment = % of Ownership Interest of investor × (Fair value of P&E – Book value of P&E)

| | |
|---|---|
| Beginning net assets | xxx |
| ***Add:*** Net income | xxx |

| | |
|---|---|
| ***Less:*** Dividends paid | (xxx) |
| ***= Ending net assets*** | xxx |
| ***Add:*** Investor's proportionate share of Investee's recorded net assets (% of Ownership Interest × Ending net assets) | xxx |
| ***Add:*** Unamortized excess purchase price (Excess purchase price – Amount attributable to PP&E) | xxx |
| **= Investment in Investee** | **xxx** |

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

## 5.4 Fair Value Option

Under both IFRS and U.S.GAAP, companies can report equity method at fair value at the time of initial recognition but the choice is irrevocable. Under U.S.GAAP, all entities can use this option whereas under IFRS, this option is restricted to following entities:

- Venture capital organizations
- Mutual funds
- Unit trusts
- Investment-linked insurance funds

In the subsequent periods, the investment is reported at fair value and unrealized gains and losses arising from changes in fair value as well as any interest and dividends received are included in the investor's profit or loss (income).

**Under the Fair value method:**

- The investor's proportionate share of the investee's profit or loss, dividends or other distributions, is not reported on the investor's balance sheet.
- Excess of cost over the fair value of the investee's identifiable net assets is not amortized and no goodwill is created.

## 5.5 Impairment

**IFRS**: Investment is impaired when *Carrying amount of investment > Recoverable amount.*
*Where,*

- Recoverable amount is the higher of "Value in Use" or Net Selling Price.
- Value in use = PV of estimated future cash flows
- Net selling price = Fair value – Cost to sell

Under IFRS, an investment is considered impaired when:

- There is an objective evidence of impairment as a result of one or more loss events.
- Loss event has an impact on the investment's future cash flows, which can be reliably estimated.

**Accounting Treatment of Impairment loss:**

- Impairment loss is recognized on the income statement.
- The carrying amount of the security is reduced either directly or by increasing an allowance account.

**U.S.GAAP:** Investments are considered impaired only when *Fair value of investment < carrying value and this decline is determined to be permanent.*

**Accounting Treatment of Impairment loss for Debt Securities:**

- Impairment loss is recognized on the income statement.
- Carrying value of the investment on the Balance Sheet is reduced to its fair value.

**Reversal of Impairment Loss:** Under both IFRS and U.S GAAP, reversal of impairment losses is NOT allowed.

## 5.6 Transactions with Associates

There are two types of transactions with associates:

1) **Upstream Transactions:** Transactions from associate to investor are called upstream transactions. In case of upstream transactions,

- Profit on the inter-company transaction is recorded on the ***associate's*** income statement.
- The investor's share of the unrealized profit is included in the Equity income of the investor's income statement.

| | |
|---|---|
| Investor's share of Associate's reported net income (% of Ownership Interest × Reported net income) | xxx |
| ***Less:*** Amortization of excess purchase price | (xxx) |
| ***Add:*** Unrealized profit (% of Ownership Interest × Profit from the upstream sale in Associate's net income) | (xxx) |
| **= Equity Income to be reported as a line item on Investor's Income statement*** | **xxx** |

**Balance in the investment in Associate to be reported at the end of year:**

| | |
|---|---|
| Purchase price | xxx |

| | |
|---|---|
| ***Add:*** Equity income (as calculated above)* | xxx |
| ***Less:*** Dividends received (% of Ownership Interest × Dividends paid) | (xxx) |
| **= Value of Investment in Associate's company at the end of year** | **xxx** |

**Composition of Investment account:**

| | |
|---|---|
| Investor's proportionate share of Associate's net equity (i.e. net assets at book value) = [(% of Ownership Interest × beginning Book value of net assets) + (Reported net income of associate – Profit from the upstream sale in Associate's net income) – Dividends paid by the associate)] | xxx |
| ***Add:*** Unamortized excess purchase price (Excess purchase price – Amortization of excess purchase price) | xxx |

2) **Downstream Transactions:** Transactions from investor to associate are called downstream transactions. In case of downstream transactions,

- Profit on the inter-company transaction is recorded on the ***investor's*** income statement.
- The unrealized (unearned) profits are removed (to the extent of the investor's ownership interest in the associate) from the equity income of investor.

| | |
|---|---|
| Investor's share of Associate's reported net income (% of Ownership Interest × Reported net income) | xxx |
| ***Less:*** Amortization of excess purchase price | (xxx) |
| ***Less:*** Unrealized profit (% of Ownership Interest × Profit from the downstream sale in Associate's net income) | (xxx) |
| **= Equity Income to be reported as a line item on Investor's Income statement** | **xxx** |

Unrealized profit = % of goods unsold × Profit on the sale to investee

Investor's share of the unrealized profit = Unrealized profit × % of goods unsold

| | |
|---|---|
| Investor's share of associate's reported net income (% of Ownership Interest × Reported net income) | xxx |
| ***Less:*** Amortization of excess purchase price | (xxx) |
| ***Add:*** Realized profit (% of goods unsold × Unrealized profit) | xxx |
| **= Equity Income to be reported as a line item on Investor's Income statement** | **xxx** |

**Practice: Example 5,6, Volume 2, Reading 14.**

### 5.7 Disclosure

Under both IFRS and U.S.GAAP, companies are required to provide disclosure about the assets, liabilities and the results of equity method investments. Dividends from associated companies are not included in investor income because it would be a double counting.

### 5.8 Issues for Analysts

An analyst should recognize whether it is appropriate for the company to use the equity method or not because:

1) A company may prefer to use equity method simply to enhance its profits by including associate income as equity income even if it has no significant influence on the investee.
2) A company may prefer to use equity method to enhance its financial performance even if it has significant control on the investee because under equity method:

- An investor is not required to report asset or liability of the investee on its balance sheet. This results in understated debt ratio.
- Associate income is included in the investor's net income but associate revenue is not included. This leads to overstated net margin ratios.

In addition, it is also important for an analyst to determine the quality of the equity method earnings.

## 6. BUSINESS COMBINATIONS

Business combinations involve the combination of two or more entities into a larger economic entity. In business combinations, investor usually has greater than 50% ownership interest in the investee.

**Motivations behind Business Combinations:**

- Synergies
- Cost savings
- Tax advantages
- Coordination of production process
- Efficiency gains in the management of assets

Under IFRS, business combinations have no categories, that is, in every business combination one party is identified as acquirer and other as target. Under U.S.GAAP, business combinations have following categories:

1. **Merger:** Acquirer acquires 100% of the target and only one of the entities remains in existence. In a merger, an acquirer can acquire the net assets of the target using various types of payments i.e.
   - Issue common stock
   - Issue Preferred stock
   - Issue Bonds
   - Pay cash

   **Company X + Company Y = Company X**
2. **Acquisition:** In acquisition, each entity remains a separate legal entity and maintains its separate financial records.

   **Company X + Company Y = (Company X + Company Y)**
3. **Consolidation:** In consolidation, new entity is formed whereas the predecessor entities cease to exist.

   **Company X + Company Y = Company Z**
4. **Special Purpose Entities:** Special purpose entity is created by a sponsoring company for a narrowly defined purpose.

## 6.1 Pooling of Interests

Currently, neither IFRS nor U.S.GAAP allows companies to use the pooling/uniting of interests method; rather, companies are now required to use ***Purchase Method*** and are not allowed to amortize goodwill. However, companies may continue to use pooling of interests method for business combinations that occurred prior to its disallowance.

**Characteristics of Pooling of Interests Method:** In a pooling of interest method,

- The two entities involved are required to exchange common shares between them.
- Assets and liabilities are reported at their book values.
- Pre-combination retained earnings are included in the balance sheet of the combined companies.
- Goodwill is not created because the combined companies are treated as if they had always operated as a single economic entity.
- Cost of goods and depreciation expense are lower in pooling of interest method because assets are reported at their book values.
- The assets of an entity are understated whereas income is overstated relative to companies that used the acquisition method.

**Characteristics of Purchase Method:**

Under purchase method:

- Net assets (i.e. tangible and intangible assets – liabilities) are purchased and reported at fair values.
- Since net assets are reported at fair values, depreciation expense is higher under purchase method, which consequently leads to lower reported income than of pooling of interests method.

## 6.2 Acquisition Method

Currently, under both IFRS and U.S.GAAP, companies are required to use acquisition method (with few exemptions) for business combinations. It replaces the purchase method.

**Characteristics of Acquisition Method:**

Under acquisition method:

- Assets and liabilities are reported at their Fair values.
- Direct costs of business combinations (e.g. professional & legal fees, valuation experts, consultants etc.) are expensed as incurred.
- At the date of acquisition, only the acquirer's retained earnings are carried to the combined entity.
- Earnings of the target are included on the consolidated income statement and retained earnings only in post-acquisition periods.

### *6.2.1) Recognition and Measurement of Identifiable Assets and Liabilities:*

Under both IFRS and U.S.GAAP:

- Acquirer is required to report the identifiable assets & liabilities of the acquiree (target) at fair values as of date of acquisition.
- Acquirer is also required to recognize identifiable intangible assets (e.g. brand name, patent etc.) that are internally developed by acquiree.

### *6.2.2) Recognition and Measurement of Contingent Liabilities:*

On the date of acquisition,

- The acquirer must recognize any contingent liability only if:
  - *i. It represents a present obligation associated with past events.*
  - *ii. It can be measured reliably.*
- The acquirer is not required to recognize the costs that it expects but is not obliged to incur as liabilities by the acquirer as of the acquisition date. Rather,

these costs are recognized by the acquirer in future periods as they are incurred.

***Difference between IFRS & U.S.GAAP:***

- IFRS include contingent liabilities if their fair values can be reliably measured.
- U.S.GAAP includes only those contingent liabilities that are probable and can be reasonably estimated.

#### 6.2.3) Recognition and Measurement of Indemnification Assets

On the acquisition date, an indemnification asset must be recognized by the acquirer, if the acquiree contractually indemnifies the acquirer for the outcome of a contingency or an uncertainty related to all or part of a specific asset or liability of the acquiree.

If the indemnification asset is previously recognized at its fair value, then at the acquisition date, the acquirer must recognize that asset at its fair value.

#### 6.2.4) Recognition and Measurement of Financial Assets and Liabilities

The acquirer is allowed to reclassify the financial assets and liabilities of the acquiree depending on the contractual terms, economic conditions, and the acquirer's operating or accounting policies, existing at the acquisition date.

#### 6.2.5) Recognition and Measurement of Goodwill

Under IFRS, goodwill can be measured using two methods:

1) **Full Goodwill Method:**
   Goodwill = Fair value of Acquisition – Fair value of identifiable net assets
   *Or*
   Goodwill = Total Fair value of the Subsidiary – Fair value of the subsidiary's identifiable net assets
2) **Partial Goodwill Method:**
   Goodwill = Fair value of the acquisition – Acquirer's share of the fair value of all identifiable tangible and intangible assets, liabilities and contingent liabilities acquired
   *Or*
   Goodwill = Purchase price – parent's (acquirer's) proportionate share of the subsidiary's identifiable assets

Under U.S.GAAP, companies are allowed to use Full Goodwill method only.

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

#### 6.2.6) Recognition and Measurement when Acquisition Price is less than Fair value

In an acquisition method *when purchase price is less than fair value of the target's net assets*, the acquisition is referred to as ***Bargain Acquisition***.

Currently, under both IFRS and U.S.GAAP, companies are required to recognize the difference between the fair value of the acquired net assets and the purchase price immediately as a gain or loss.

- Any contingent consideration must be measured and recognized at fair value at the time of the business combination.
- Any subsequent changes in value of the contingent consideration are recognized in profit or loss.

**Practice: Example 8, Volume 2, Reading 14.**

### 6.3 Impact of the Acquisition Method on Financial Statements, Post-Acquisition

Under the acquisition method, the allocation of purchase price would be as follows:

| | |
|---|---|
| Fair value of the stock issued | xxx |
| ***Less:*** Book value of Investee's net assets | xxx |
| **= Excess purchase price** | **xxx** |
| | |
| Fair value of the stock issued | xxx |
| ***Less:*** Fair value allocated to identifiable net assets | (xxx) |
| **= Goodwill** | **xxx** |

**Allocation of excess purchase price:**

Excess Purchase Price = Sum of differences between fair values and book values of identifiable assets + Goodwill

Combined Assets and liabilities reported on Consolidated balance sheet under acquisition method = Book values for the asset and liabilities of Investor + Fair values for the assets and liabilities acquired from Acquiree

Combined Entity reflects the investor's capital stock outstanding plus additional shares issued to effect the transaction.

Combined Paid-in Capital = (Fair value of the stock issued to effect the transaction – Par value of the stock issued) + Additional paid-in capital of investor

## 6.4 The Consolidation Process

### 6.4.1) Business Combination with less than 100% Acquisition

In acquisition, an acquirer is not required to acquire 100% of the target and the acquirer and target are tied together in a ***parent-subsidiary*** relationship. In case of acquisition,

- Both parent and subsidiary prepare their own financial records.
- The Parent (acquirer) is required to provide consolidated financial statements in each reporting period (under both IFRS and U.S.GAAP).

In consolidated financial statements, the assets, liabilities, revenues and expenses of subsidiaries are combined with the parent company. The intercompany transactions (i.e. transactions between the parent and subsidiary are not included to avoid double counting and premature recognition of income.

### 6.4.2) Non-controlling (Minority) Interests: Balance Sheet

When acquirer holds less than 100% stake in the target, then the portion of the subsidiary's equity that is not owned by the parent is referred to as non-controlling (minority) interest.

***Minority Interest = Percentage of subsidiary not owned by the Parent × Subsidiary's Equity***

Under both IFRS and U.S.GAAP, a non-controlling (minority) shareholders' interests are reported on the consolidated balance sheet as a separate component of stockholders' equity.

***Under IFRS***, the parent can report the non-controlling interest at either its fair value (full goodwill method) or at the non-controlling interest's proportionate share of the acquiree's identifiable net assets (partial goodwill method).

***Under U.S.GAAP***, the parent is required to report the non-controlling interest at fair value (i.e. full goodwill method only).

**Value of non-controlling interest under the full goodwill method:**

Value of non-controlling interest = Non-controlling interest's proportionate share of the subsidiary × Fair value of the subsidiary on the acquisition date

**Value of non-controlling interest under the partial goodwill method:**

Value of non-controlling interest = Non-controlling interests' proportionate share of the subsidiary × Fair value of the subsidiary's identifiable net assets on the acquisition date

**Practice: Example 9, Volume 2, Reading 14.**

### 6.4.3) Non-Controlling (Minority) Interests: Income Statement

Non-controlling (minority) interests are presented as a line item on the income statement.

**Financial Statement Impact of Full and Partial Goodwill Methods:**

- Depreciation expense is same under both methods.
- Net Income is identical under both methods.
- Total liabilities, retained earnings and capital stock are identical under both methods.
- ROA and ROE are higher under Partial Goodwill Method because total assets & shareholders' equity are lower under Partial Goodwill Method.
- Goodwill and Non-controlling interests are higher under Full Goodwill Method.
- Debt-to-Equity ratio is higher under Partial Goodwill method.

**NOTE:** Over time, as the value of the subsidiary changes as a result of changes in net income and changes in equity, the value of the non-controlling interest on the parent's consolidated balance sheet also change.

### 6.4.4) Goodwill Impairment

Goodwill has indefinite life. It is not amortized; rather it is tested for impairment at least annually. Once goodwill is written down, it cannot be reversed upward.

**Goodwill Impairment Test under IFRS:** Under IFRS, goodwill impairment is tested using a one-step approach. That is, *goodwill is impaired when the carrying value of the Cash-generating Unit > Recoverable amount of the Cash-generating Unit.*
Impairment loss = Carrying value of the Cash-generating Unit - Recoverable amount of the Cash-generating Unit
*Where,*
*Recoverable Amount = Higher of Net selling price or its value in use*
*Net selling price = Fair value – costs to sell*
*Value in use = PV of expected future cash flows of cash-generating unit*
*Cash Generating Unit:* It is the smallest identifiable group of assets that generates cash inflows that are

independent of cash inflows of other assets or group of assets.

**Accounting Treatment of Impairment Loss under IFRS:**

i. First of all, the goodwill that has been allocated to the cash-generating unit is reduced by the amount of impairment loss.
ii. Once the goodwill of the cash-generating unit has been reduced to zero, the remaining amount of loss is then allocated to all of the other assets in the cash-generating unit on a pro rata basis.
iii. Impairment loss is recorded as a separate line item in the consolidated income statement.

**Goodwill Impairment Test under U.S.GAAP:** Under U.S.GAAP, goodwill impairment is tested using the following two-steps approach.

***a) Goodwill Impairment Test:*** *Goodwill is impaired when the carrying value of the Reporting Unit (including Goodwill) > Fair value of the Reporting Unit (including Goodwill).*

***b) Measurement of Impairment loss:***

Impairment loss = Carrying value of Reporting unit's Goodwill - Implied Fair value of the Reporting unit's Goodwill

*Where,*
*Implied Fair value of the Reporting unit's Goodwill = Fair value of the Reporting Unit – Fair value of the Reporting unit's asset and liabilities.*

**Accounting Treatment of Impairment Loss under U.S.GAAP:**

i. First of all, the goodwill that has been allocated to the reporting unit is reduced by the amount of impairment loss.
ii. Once the goodwill of the reporting unit has been decreased to zero, no other adjustments are made to the carrying values of any of the reporting unit's other assets or liabilities.
iii. Impairment loss is recorded as a separate line item in the consolidated Income Statement.

**Practice: Example 10-11, Volume 2, Reading 14.**

## 6.5 Financial Statement Presentation Subsequent to the Business Combination

The presentation of consolidated financial statements and format of consolidated Income statement are similar under both IFRS and U.S.GAAP. Net Income is also identical under IFRS and U.S.GAAP but specific line-items may differ.

## 6.6 Variable Interest and Special Purpose Entities

Special purpose entities (SPEs) (under IFRS whereas, variable interest entity or special purpose entity under U.S.GAAP) are non-operating entities, which are created to meet specific needs of the sponsoring entity.

**Forms of SPEs:**

a) Corporation
b) Trust
c) Partnership
d) Unincorporated Entity

**Benefits of Non-consolidated SPEs to the Sponsoring Company:**

i. It helps the sponsoring company to avoid reporting assets and liabilities of the SPE.
ii. It helps the sponsoring company to reduce risk.
iii. It facilitates the sponsoring company to report large amounts of revenues and gains because these transactions are treated as sales.
iv. Non-consolidation of SPEs helps to improve sponsoring company's asset turnover.
v. Non-consolidation of SPEs helps to reduce sponsoring company's operating and financial leverage.
vi. Non-consolidation of SPEs facilitates to improve sponsoring company's profitability.
vii. Non-consolidation of SPEs facilitates the SPE to obtain lower cost financing.

It must be stressed that the financial performance measured by unconsolidated financial statements does not represent true performance. Therefore analyst should always consolidate SPEs when analyzing financial performance.

**Forms of Beneficial Interest in SPE:**

- Debt instrument
- Equity instrument
- Participation right
- Residual interest in a lease

IFRS requires consolidation if the substance of the relationship indicates control by the sponsor. Control is present when:

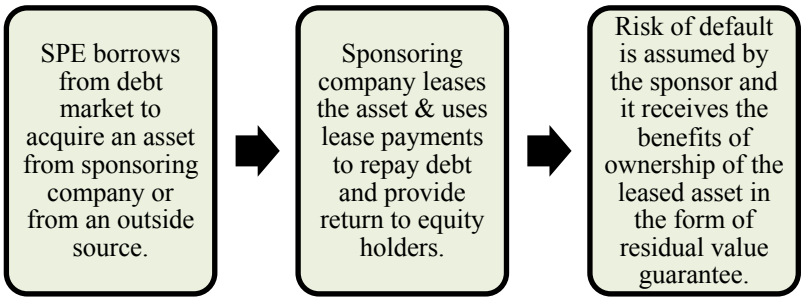
a) The investor has the ability to influence the financial and operating policy of the entity.
b) The investor is exposed or has rights to variable returns from its involvement with the investee.

Under U.S.GAAP, special purpose entities are classified as variable interest entities if:

1) Total equity at risk is not sufficient to finance activities without financial support from other parties, or
2) Equity investors lack any one of the following:
   a) The ability to make decisions;
   b) The obligation to absorb losses; or
   c) The right to receive returns;

Under U.S.GAAP, two-component consolidation model is used that includes both a variable interest component and a voting interest (control) component. Under the variable interest component, the primary beneficiary of a variable interest entity (VIE) is required to consolidate the VIE irrespective of its voting interests (if any) in the VIE or its decision making authority. The ***primary beneficiary*** is the party that will absorb the majority of the VIE's expected losses, receive the majority of the VIE's expected residual returns, or both. The primary beneficiary is also required to report the minority interest (if any) in its consolidated balance sheet and income statement.

### 6.6.1) Illustration of an SPE for a Leased Asset




**Advantages:**

- Risk reduces because the asset is pledged as collateral. Due to lower risk, the SPE is able to obtain low cost financing.
- Equity investors are not exposed to all the business risks of the sponsoring company; rather, they are only exposed to the business risks of restricted SPE.

### 6.6.2) Securitization of Assets

When receivables are securitized:

- Accounts receivable are decreased and cash is increased by the amount of those accounts receivable in the Balance sheet of Sponsor/seller.
- Cash inflow is reported as operating cash inflow by the sponsoring company.
- SPE issues debt to acquire all or a portion of the sponsoring company receivables.
- Repayment of debt and interest are made with the cash flows generated by the receivables.
- If receivables are sold to SPE at a price greater than their carrying value, the sponsoring company will report a gain on sale in its income statement.

**Financial Ratios Impact of Securitization of Receivables:**

- Sponsoring entity's account receivable turnover ratio is improved.
- Sponsoring entity's profitability ratios i.e. net profit margin, ROA, ROE and return on total capital are higher.
- Sponsoring entity's Debt/Equity and Equity/Total Assets ratios remain unaffected by the sale.

When SPE is consolidated by a sponsoring company, then its financial impact on the sponsoring entity's consolidated balance sheet will be the same as the impact of borrowing directly against the receivables i.e.

- Equity/Total Assets ratio will be lower.
- Debt/Equity ratio will be higher.
- Current ratios will be higher.
- Profitability ratios i.e. net profit margin, ROA, ROE and return on total capital will be lower.

**Practice: Example 12, Volume 2, Reading 14.**

## 6.7 Additional Issues in Business Combinations that Impair Comparability

### 6.7.1) Contingent Assets and Liabilities

**Under IFRS:**

- Contingent assets and liabilities are recognized at fair value at the time of acquisition.
- Contingent liabilities are recorded separately as part of the cost allocation process only when their fair values can be measured reliably.
- In subsequent periods, contingent liability is measured at higher of the amount initially recognized or the best estimate of the future settlement amount.
- ***Contingent assets are not recognized under IFRS.***

**Under U.S.GAAP:**

- Contractual Contingent assets and liabilities are recognized and recorded at fair value at the time of acquisition.
- Non-contractual Contingent assets and liabilities are recognized only when they "more likely than not" meet the definition of an asset or a liability.
- In subsequent periods, contingent liability is measured at higher of the amount initially recognized or the best estimate of the amount of the loss.
- Contingent assets are measured at the lower of the acquisition date fair value or the best estimate of the future settlement amount.

### 6.7.2) Contingent Consideration

- Under both IFRS and U.S.GAAP, contingent consideration is initially measured at fair value.
- Under IFRS, the contingent consideration is classified as either a financial liability or equity.
- Under U.S.GAAP, the contingent consideration is classified as a financial liability, equity or asset.
- In subsequent periods, changes in fair value of liabilities (and assets in case of U.S.GAAP) are recognized in consolidated income statement.
- Under both IFRS and U.S.GAAP, when contingent consideration is classified as equity, it is not re-measured for changes in its fair value.

### 6.7.3) In-Process R&D

- Under both IFRS and U.S.GAAP, in-process R&D when acquired in a business combination is recognized as a separate intangible asset.
- Initially, it is measured at fair value, if can be measured reliably.
- In subsequent periods, it is amortized if successfully completed or is subject to impairment if it fails to produce any technically and/or financially viable results.

### 6.7.4) Restructuring Costs

Under both IFRS and U.S.GAAP, restructuring costs related to business combination are not recognized as part of acquisition. These costs are treated as expense in the periods when these costs are incurred.

**Differences in Financial Results under different Accounting Methods**

| | Equity Method | Proportionate Consolidation Method | Acquisition Method |
|---|---|---|---|
| **Total Assets** | Lower | In-between | Higher |
| **Total Liabilities** | Lower | In-between | Higher |
| **Shareholders' Equity** | Same | Same | Higher by the amount of Minority Interest |
| **Sales or Revenues** | Lower | In-between | Higher |
| **Expenses** | Lower | In-between | Higher |
| **Operating income** | Lower | In-between | Higher (because minority interest is reported below the operating line in most cases on a consolidated income statement). |
| **Leverage** | Lower (liabilities are lower and equity is the same) | In- between | Higher |
| **Net Profit Margin** | Higher (sales are lower and NI is the same) | In-between | Lower |
| **ROE** | Higher (equity is lower and NI is the same) | Same | Lower |
| **ROA** | Higher (NI is the same and Assets are lower) | In-between | Lower |
| **Interest coverage ratio** | Higher | In-between | Lower (because of higher interest expense) |

**End of Reading Practice Problems:**
**Practice all the questions given at the end of Reading 14.**

# 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 × 1% × 25 years of service = $25000.

- 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 15.*

## 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,

Funded Status = PV of the DB obligations – 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 15.**

#### 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:

***Net Interest expense*** = Discount rate × 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.

Net return on plan assets = Actual return on plan assets – (Plan assets × 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 <u>*not reported as net*</u> 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).
  Amount recognized as interest income = Plan assets × 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.
  Actual return – (Plan assets × 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 <u>NOT</u> 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 <u>*beginning*</u> of the reporting period are compared with the defined benefit obligation and fair value of plan assets at the <u>*beginning*</u> of the period as explained below.

If 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

↓

Excess amount (difference) is amortized over the *expected average remaining working (service) lives* of the employees covered by the plan.

↓

And it is recognized as a component of pension expense in the P&L.

**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 |
| **Average remaining working lives of firm employees at Jan 1, 2010 is 10 years** | | |

***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 1st 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:

i. Current service costs
ii. Past service costs
iii. 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:

i. Current service costs
ii. Interest cost
iii. Expected return on plan assets or actual return
iv. Amortization of Past service costs
v. Actuarial gains & losses (if company recognizes them in income statement)

where,

Transition Liability = PBO liability – 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 affect 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 |
|---|---|---|
| **Higher Discount Rate** | Lower pension obligation<br><br>**Note:**<br>A lower pension obligation improves Funded status of the Plan. | Lower pension costs (because of lower beginning value of obligation and lower service costs) |
| **Higher Rate of Compensation Growth** | Higher pension obligation (because of increased future pension payments) | Higher pension costs (because of higher service costs) |
| **Higher Expected Rate of Return on plan assets** | No Effect (because fair value of plan assets is used on Balance sheet) | Under IFRS →Not applicable<br>Under U.S. GAAP→<br>Lower pension costs |
| **Increase in life expectancy** | Higher pension obligation<br>***But***, 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 |
|---|---|---|---|---|
| **Higher Discount Rate** | Decrease | Decrease<br><br>**NOTE:**<br>• Reduces Interest cost (PBO × Discount rate) when time to retirement is long.<br>• When plan is mature, high discount rate increases interest cost instead of decreasing it. | No Effect | Decrease<br><br>**NOTE:**<br>Because increase in Discount rate reduces PV of future sum. This reduces the current service cost. |
| **Higher Rate of Compensation Growth** | Increase | Increase | No Effect | Increase |
| **Higher Expected Rate of Return on plan assets** | 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 15.**

**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 15.**

## 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 is 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 earn 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 15.**

### 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 15.**

## 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:

i. Stock (equity-settled)
ii. Stock options (equity-settled)
iii. Stock appreciation rights (cash-settled)
iv. 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.

  *Compensation expense = 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,

Remaining vesting period = 1.5 years

For the year 2009,

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

= $500 million ÷ 1.5 years = $333.33 million

For the year 2010,

Compensation expense recognized = $500 - $333.33
= $166.67 million

**Practice: Example 7, Volume 2, Reading 15.**

## 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):***

i. SARs help to motivate employees and align their interests with shareholders.
ii. 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.
iii. 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: End of Chapter Practice Problems for Reading 15.**

# 1. INTRODUCTION

Most multinationals are involved in two types of international activities.

1) Engage in transactions that are denominated in a foreign currency and
2) Invest in foreign subsidiaries that keep their books in a foreign currency.

In order to prepare consolidated financial statements, a multinational company must translate the foreign currency amounts related to both types of international activities into the currency in which the company presents its financial statements.

The translation of foreign currency is an important accounting issue for companies with multinational operations. The value of foreign currency payables and receivables fluctuates over time with changes in foreign exchange rates. Therefore, the major accounting issue related to foreign currency transactions is how to reflect the changes in value for foreign currency payables and receivables in the financial statements.

# 2. FOREIGN CURRENCY TRANSACTIONS

**Presentation Currency:**
The currency in which financial statement amounts are presented is known as the Presentation currency e.g. U.S. companies are required to prepare and present financial results in U.S. dollars. It is normally the currency of the country where the company is located.

**Functional Currency:**
The currency of the primary economic environment in which an entity operates is known as Functional currency. It is normally the currency in which an entity primarily generates and expends cash.

**Local Currency:**
The currency of the company where a company is located is known as Local currency.

**Foreign Currency:**
Foreign currency is any currency other than the functional currency of a company.

**Foreign exchange rates**:
The prices at which foreign currencies can be purchased or sold are called foreign exchange rates.

**Foreign Currency Transactions:**
These are the transactions that are denominated in a currency other than the company's functional currency.

Foreign currency transactions occur when a company

1) Makes an import purchase or an export sale that is denominated in a foreign currency.
2) Borrows or lends funds where the amount to be paid or received is denominated in a foreign currency.

Generally, the local currency is an entity's functional currency, thus a multinational corporation with subsidiaries in different countries may have a variety of functional currencies.

## 2.1 Foreign Currency Transaction Exposure to Foreign Exchange Risk

**Exchange Risk**
Foreign Currency Transaction Exposure is of two types:

1. **Import Purchase:** The risk that from the purchase date until the payment date the foreign currency may appreciate in value, resulting in increase in the amount of functional currency that an importer need to obtain to settle the account payable is the foreign currency transaction exposure related to import purchase.
2. **Export Sale:** The risk that from the purchase date until the payment date the foreign currency may depreciate in value, resulting in decrease in the amount of functional currency that an exporter receive by converting the foreign currency into domestic currency.

Under both IFRS and U.S.GAAP, the change in the value of the foreign currency asset or liability resulting from a foreign currency transaction must be treated as a gain or loss reported on the income statement.

### 2.1.1) Accounting for Foreign Currency Transactions with Settlement before Balance Sheet Date

Foreign currency risk on transactions arises only when the transaction date and the payment date are different.

Suppose the euro value of the Mexican peso account payable on 1 November 20X1 is MXN100,000 × EUR0.0650 = EUR6,500. The company purchases 100,000 Mexican Pesos on 15 December 20X1, when the value of the peso has increased to EUR0.0700. The company now needs to purchase 100,000 Mexican pesos by paying 7,000 euro.

Net loss = EUR7,000 – EUR6,500 = 500 euro

**Practice: Example 1, Volume 2, Reading 16.**

### 2.1.2) Accounting for Foreign Currency Transactions with Intervening Balance Sheet Dates

Under both IFRS and U.S.GAAP, when foreign currency transactions occur with intervening balance sheet date i.e. balance sheet date falls between the initial transaction date and the settlement date, foreign currency transaction gains and losses must be reported on the income statement. That is, a gain or loss is recognized in income before it has been realized by the company.

Actual realized gain or loss on the foreign currency transaction = Foreign currency transaction gains or losses from the transaction initiation to balance sheet date + Foreign currency transaction gains or losses from balance sheet date to transaction settlement

Analyst should keep in mind that these gains and losses are unrealized at the time they are recognized and there is no certainty that gains or losses will be realized when the transactions are settled. This implies that the ultimate net gain or loss may vary significantly because of possibility for changes in trend and volatility of currency prices.

| | | Foreign Currency | |
|---|---|---|---|
| **Transaction** | **Type of Exposure** | **Strengthens** | **Weakens** |
| Export sale | Asset (Account receivable) | Gain (because account receivable increases in value in terms of company's functional currency) | Loss |
| Import purchase | Liability (Account payable) | Loss (because payable increases in value in terms of company's functional currency) | Gain |

**Practice: Example 2, Volume 2, Reading 16.**

## 2.2 Analytical Issues

Under both IFRS and U.S.GAAP, foreign currency transaction gains and losses must be reported in net income even when unrealized. However, these accounting standards do not provide any guidance on the placement of foreign currency transaction gains and losses on the income statement. Hence, companies can treat gains and losses either

1) As a component of other operating income/expense; or
2) As a component of non-operating income/expense, in some cases as a part of net financing cost.

The calculation of operating profit margin is affected by the difference in placement of foreign currency transaction gains or losses on the income statement. But gross profit margin and net profit margin remain unaffected.

- Operating profit margin is larger (smaller) when transaction gains (losses) are reported as component of other operating income (expense).

When exchange rates do not fluctuate by the same amount or in the same direction from one accounting period to the next, reporting foreign currency transaction gains and losses as part of other operating income/expense will result in greater volatility in operating profit and operating profit margin over time.

Two companies in the same industry may choose different alternatives to report foreign currency transaction gains/losses on the income statement, thus distorting the direct comparison of operating profit and operating profit margins between those companies.

**Practice: Example 3, Volume 2, Reading 16.**

### 2.3 Disclosures Related to Foreign Currency Transaction Gains and Losses

Disclosures related to foreign currency transactions are available in both in the Management Discussion & Analysis and the Notes to the Financial Statements section of an annual report.
It is useful for companies to disclose both the amount of transaction gain or loss that is included in income and the presentation alternative selected by them.

- Under IFRS, companies are required to disclose the "amount of exchange differences recognized in profit or loss".
- Under US GAAP, companies are required to disclose "aggregate transaction gain or loss included in determining net income for the period".

Neither standard requires companies to disclose the line item in which these gains and losses are located.

The amount of transaction gains and losses can be immaterial for a company due to the following reasons:

1) The company engages in a limited number of foreign currency transactions that involve relatively small amounts of foreign currency.
2) The exchange rates between the company's functional currency and the foreign currencies in which it has transactions tend to be relatively stable.
3) Net gain or loss is immaterial because the gains on some foreign currency transactions are naturally offset by losses on other transactions.
4) The company engages in foreign currency hedging activities to offset the foreign exchange gains and losses that arise from foreign currency transactions.

## 3. TRANSLATION OF FOREIGN CURRENCY FINANCIAL STATEMENTS

Most operations located in foreign countries keep their accounting records and prepare financial statements in the local currency. IFRS and U.S.GAAP require parent companies to prepare consolidated financial statements. To prepare consolidated statements, parent companies need to translate the foreign currency financial statements of their foreign subsidiaries into parent company's presentation currency.

### 3.2 Translation Methods

There are two approaches used for translating the foreign subsidiary's assets and liabilities.

1. **Current Rate Method:**
   In this method, all assets and liabilities are translated at the current exchange rate (the spot exchange rate on the balance sheet date). This method is also known as ***Translation***.
2. **The Monetary/nonmonetary Method:**
   In this method, only monetary assets and liabilities (i.e. cash, receivables, payables etc.) are translated at the current exchange rate; nonmonetary assets and liabilities (i.e. inventory, fixed assets, deferred revenue etc.) are translated at historical exchange rates (the exchange rates that existed when the assets and liabilities were acquired).
3. **Temporal Method:**
   It is a variation of "the monetary/nonmonetary method" in which both monetary assets and liabilities and nonmonetary assets and liabilities are re-measured at their current value on the balance sheet to be translated at the current exchange rate i.e. assets and liabilities reported on the foreign currency balance sheet at a current value should be translated at the current exchange rate while the assets and liabilities reported on the foreign currency balance sheet at historical costs should be translated at historical exchange rates. This method is also known as ***Remeasurement***.

Which method is appropriate for an individual foreign entity depends on the entity's functional currency. That is,

- If functional currency is the presentation currency, Temporal or Remeasurement method should be used.
- If functional currency is the local/foreign currency, Current rate method should be used.
- When foreign subsidiary operates in a highly inflationary country, Remeasurement method should be used.

**Remeasurement results in** exchange gains or losses

- When there are exchange gains, they are credited to balance sheet.
- When there are exchange losses, they are debited to balance sheet.
- The gains or losses are included in calculating net income in US dollars.

- **Translation** results in translation adjustment, which is reported as a part of accumulated other comprehensive income.
- The translation adjustment is included as part of stockholders' equity
  - If translation adjustments are negative ➔ Debit to balance ➔ deduct from equity.
  - If translation adjustments are positive ➔Credit to balance ➔ add to equity.
- Translation adjustment is accumulated as a separate component of equity and the cumulative translation adjustment associated with specific foreign entity is transferred to net income when that entity is sold or disposed of.

**Under IFRS, foreign entity's functional currency is the currency:**

1. that influences sales price for goods and services.
2. of the country whose competitive forces and regulations mainly determine the sales price of its goods and services.
3. that mainly influences labor, material, and other costs of providing goods and services.
4. in which funds from financing activities are generated.
5. in which receipts from operating activities are usually retained.

Additional factors that should be considered in determining an entity's functional currency include whether the:

6. activities of the foreign operation are carried out independently or are extension of the parent's operations.
7. transactions with the parent company are a large or a small proportion of the foreign entity's activities.
8. cash flows generated by the foreign operation directly affect the cash flow of the parent and are available to be remitted to the parent.
9. operating cash flows generated by the foreign operation are sufficient to service existing and normally expected debt or whether the foreign entity will need funds from the parent company to service its debt.

When the functional currency indicators are mixed and functional currency is not obvious then management should use its best judgment in determining the functional currency. Also, in such cases, indicators 1 & 2 should be given priority over indicators 3 through 9. U.S.GAAP provides similar (not identical) indicators for determining a foreign entity's functional currency.

Steps required (under both IFRS and U.S.GAAP) in translating foreign currency financial statements into the parent's presentation currency are as follows:

1) Identify the functional currency of the foreign entity.
2) Translate foreign currency balances into the foreign entity's functional currency.
3) When foreign entity's functional currency is different from parent's presentation currency, use the current exchange rate to translate the foreign entity's functional currency balances into the parent's presentation currency.

### 3.2.1) Foreign Currency Is the Functional Currency

When a foreign entity has a functional currency that is different from the parent's presentation currency i.e. foreign currency is the functional currency, then foreign entity's financial statements are translated into the parent's presentation currency using ***Current Rate Method***. Foreign entity's functional currency is different from parent's presentation currency when foreign subsidiary is self-contained, independent and whose operating, investing and financing activities are decentralized from the parent.

**Procedure to apply the Current Rate Method:**

1. All assets and liabilities are translated at the current exchange rate at the balance sheet date.
2. Stockholders' equity accounts are translated at historical exchange rates. However, total of equity is translated at current exchange rate.
3. Revenues and expenses are translated at the average exchange rate.
4. Dividends are translated at the rate that applied when they were paid.
5. Translation gain or loss is reported in shareholders' equity as part of the cumulative translation adjustment (CTA). CTA is a plug figure that keeps the translated balance sheet in balance i.e.

**CTA = Assets – Liabilities – Common Stock – Retained Earnings**

- The cumulative translation adjustment is basically the ***unrealized*** translation gain or loss that is accumulated over time and is deferred on the balance sheet as a separate component of stockholders' equity. CTA is an accumulated balance of all translation gains & losses at a point in time. To compute the translation gain or loss for a specific period, change in the CTA for the period is needed.
- When the foreign entity is sold, the cumulative translation adjustment related to that entity is reported as a ***realized*** gain or loss in net income.
- The translation adjustment is not included in the calculation of income.
- Translation adjustment is zero when exchange rate remains stable.
- Translation adjustment is negative (positive) when

foreign currency depreciates (appreciates) in value.

**Important to Note:**
In Current Rate method, first of all Income statement is translated into parent's presentation currency; then, ending balance of retained earnings is estimated using that translated income statement.

**Balance Sheet Exposure:**
The assets and liabilities that are translated at the current exchange rate are exposed to translation adjustment. Exposure to translation adjustment is known as ***Balance sheet translation*** or ***Account Exposure***. Balance sheet items that are translated at historical exchange rates are not exposed to translation adjustment.

Balance sheet exposure under Current method = Foreign Subsidiary's Net Asset Position

- The current rate method results in a Net Asset Balance Sheet Exposure when total assets > total liabilities.
  - When foreign currency appreciates, a net asset exposure results in a positive translation adjustment or a decrease in negative cumulative translation adjustment.
  - Commonly, the current rate method results in net asset balance sheet exposure except when an entity has negative stockholders' equity.
- The current rate method results in a Net Liability Balance Sheet Exposure when total assets < total liabilities.
  - When foreign currency appreciates, a net liability exposure results in a negative translation adjustment or an increase in negative cumulative translation adjustment.

Balance sheet exposure generates a translation adjustment that does not result cash inflow or outflow. However, the balance sheet exposure affects the amounts reported in consolidated financial statements.

Balance sheet exposure under Temporal method = Foreign Subsidiary's Net Monetary Asset/Liability Position

**Transaction exposure:** Transaction exposure results when the receipt or payment of foreign currency generates foreign exchange gains and losses, which are realized in cash.

| | | Foreign Currency (FC) | |
|---|---|---|---|
| | **Balance Sheet Exposure** | **Strengthens** | **Weakens** |
| When assets translated at current exchange rate > liabilities translated at current exchange rate | Net Asset balance sheet exposure | Positive translation adjustment | Negative translation adjustment |
| When liabilities translated at current exchange rate > assets translated at current exchange rate | Net Liability balance sheet exposure | Negative translation adjustment | Positive translation adjustment |

### 3.2.2) Parent's Presentation Currency Is the Functional Currency

When a foreign entity's functional currency is the same as the parent company's presentation currency, then foreign entity's financial statements are translated into the parent's presentation currency using Temporal Method. (Under U.S.GAAP this process is known as "Remeasurement"). A foreign entity's functional currency is the same as the parent company's presentation currency when parent company is responsible for making operating, investing and financing decisions for its foreign subsidiary.

**Procedure to apply the Temporal Method:**

1. **a)**. Monetary assets and liabilities are translated at the current exchange rate. Hence, only monetary assets & liabilities are exposed to exchange rate risk.

   **b)**. Nonmonetary assets and liabilities that are measured at historical costs are translated at historical exchange rates. Therefore, companies have to keep record of the exchange rates that exist when nonmonetary assets were acquired.

   **c).** Nonmonetary assets and liabilities measured at current value are translated at the exchange rate at the date when the current value was determined.

2. Stockholders' equity accounts and dividends paid are translated at historical exchange rates. However, total of equity is translated at current exchange rate.
3. **a).** Revenues and expenses related to monetary assets and liabilities are translated at the average exchange rate.
   **b).** Expenses related to nonmonetary assets and liabilities (e.g. COGS is related to inventory, depreciation is related to fixed assets and amortization is related to intangible assets) are translated at the historical exchange rate prevailing at the time of purchase.

- If FIFO is used, ending inventory is translated using current exchange rate and COGS is translated using historical exchange rate.
- If LIFO is used, ending inventory is translated using historical exchange rate and COGS is translated using current exchange rate.
- If weighted average cost is used, COGS and ending inventory are translated using weighted average exchange rate for the year.

4. No CTA is reported; rather, Remeasurement gain or loss is recognized in the Income Statement. Remeasurement gain or loss is a plug figure which is calculated as follows:

**Remeasurement Gain = Net income – Net income before Remeasurement gain**

**Remeasurement Loss = Net income – Net income before Remeasurement loss**

- An appreciating (depreciating) foreign currency results in a larger (smaller) amount of assets and liabilities but a smaller (larger) amount of equity reported on the consolidated balance sheet.

**Important to Note:**
In Temporal Method, first of all Balance Sheet is translated into parent's presentation currency. Then,

i. From this translated balance sheet, Retained earnings are estimated as follows.

**R/E = Assets – Liabilities – Common Stock**

ii. This estimated R/E is used to calculate Net Income as follows.

**NI = Ending balance of R/E + Dividends – Beginning balance of R/E**

**Items Translated at Current Exchange Rate:**

- When Exposed assets > Exposed liabilities ➔Net Asset Balance Sheet Exposure.
- When Exposed assets < Exposed liabilities ➔ Net Liability Balance Sheet Exposure.

Since most liabilities are monetary liabilities, Temporal Method usually results in Net Liability Balance Sheet Exposure.

**Advantage of using Temporal Method:**
Under Temporal method, companies are able to manage their exposure to translation gain/loss i.e. when a company manages balance sheet such that its monetary assets are equal to monetary liabilities, this results in zero balance sheet exposure.

- If a company has net monetary liability exposure and foreign currency appreciates, the company can eliminate exposure by selling its foreign currency denominated nonmonetary assets i.e. fixed assets or inventory and use those proceeds to reduce monetary liabilities.
- Similarly, if a company has net monetary liability exposure and foreign currency depreciates, the company can reduce its currency exposure by reducing equity and increasing liabilities.

By contrast, in order to eliminate balance sheet exposure under current rate method, the foreign subsidiary needs to have zero stockholders' equity.

**Disadvantage of using Temporal Method:**
Under temporal method, gains or losses are reported in the income statement that result in more volatile Net Income.

**When local currency, functional currency and the presentation currency all are different:**

1. First of all, temporal method is used to re-measure from the local currency into the functional currency.
2. Then, current method is used to translate from the functional currency to the presentation currency of the parent company.

### 3.2.3) Translation of Retained Earnings

At the end of the first year of operations, foreign currency (FC) retained earnings are translated into the parent's currency (PC) as follows:

Beginning Retained Earnings in PC = NI in PC (translated according to the method used to translate the income statement) – Dividends in PC

Beginning Retained Earnings in PC = Beginning Retained Earnings in FC × Exchange rate when dividends declared

Ending Retained Earnings in PC = Beginning Retained Earnings in PC + NI in PC (translated according to the method used to translate the income statement) – Dividends in PC

Ending Retained Earnings in PC = Ending Retained Earnings in FC × Exchange rate when dividends declared

**Rules For The Translation Of A Foreign Subsidiary's Foreign Currency Financial Statements Into The Parent's Presentation Currency Under IFRS And U.S.GAAP**

| | Foreign Subsidiary's Functional Currency | |
|---|---|---|
| | **Foreign Currency** | **Parent's Presentation Currency** |
| **Translation Method:** | **Current Rate method** | **Temporal Method** |
| Exchange rate at which financial statements are translated from foreign subsidiary's bookkeeping currency to the parent's presentation currency. | | |
| **ASSETS** | | |
| ***Monetary assets:*** Cash, account receivables | Current rate | Current rate |
| ***Nonmonetary Assets:*** | Current rate | Current rate |
| i) Measured at current value i.e. marketable securities & inventories measured at market value under the lower of cost or market rule. | Current rate | Historical rate |
| ii) Measured at historical costs i.e. PP&E | | |

| | Foreign Subsidiary's Functional Currency | |
|---|---|---|
| | **Foreign Currency** | **Parent's Presentation Currency** |
| **LIABILITIES** | | |
| ***Monetary liabilities:*** Accounts payable, long-term debt, accrued expenses, and deferred income taxes. | Current rate | Current rate |
| ***Nonmonetary liabilities:*** | Current rate | Current rate |
| i) measured at current value | Current rate | Historical rate |
| ii) not measured at current value i.e. deferred revenue | | |
| **EQUITY** | | |
| ***Other than Retained Earnings*** i.e. Common Stock | Historical rates | Historical rates |
| ***Retained Earnings (R/E)*** | Beginning balance of R/E + translated NI – dividends translated at historical rate | Beginning balance of R/E + translated NI – dividends translated at historical rate |
| **Equity (as a whole)** | Current rate | Mixed (a mix of average rate & historical rate) |
| **Revenues** | Average rate | Average rate |
| **EXPENSES** | | |
| ***Most Expenses*** | Average rate | Average rate |
| ***Expenses related to assets translated at historical exchange rate*** e.g. COGS, depreciation, and amortization etc. | Average rate | Historical rate |
| **Net Income** | Average rate | Mixed (a mix of average rate & historical rate) |

| | Foreign Subsidiary's Functional Currency | |
|---|---|---|
| | **Foreign Currency** | **Parent's Presentation Currency** |
| **Exposure** | Net Assets or Net Liabilities | Net ***monetary*** assets or Net ***monetary*** liabilities |
| **Treatment of translation** | Accumulated as | Included as |
| **adjustment in the parent's consolidated financial statements** | a separate component of equity | gain or loss in Net Income |

**Impact of Changing Exchange Rates on Exposure**

| | Foreign Currency | |
|---|---|---|
| | **Strengthens** | **Weakens** |
| **CURRENT RATE METHOD:** | | |
| Net Assets | Gain | Loss |
| Net Liabilities | Loss | Gain |
| **TEMPORAL METHOD:** | | |
| Net Monetary Assets | Gain | Loss |
| Net Monetary Liabilities | Loss | Gain |

**Practice: Example 4, Volume 2, Reading 16.**

**Highly Inflationary Economics and Translation When a Foreign Subsidiary Operates in a Hyperinflationary Economy (Section 3.2.4 and 3.5)**

**Under U.S.GAAP:**

According to U.S.GAAP, hyperinflationary economy is an economy in which the cumulative 3-year inflation rate is greater than 100%. This is equivalent to an average of approximately 26% per year. When hyperinflation is present, the parent's presentation currency is considered functional currency and Temporal Method is used to re-measure the financial statements.

**NOTE:**

When a country in which foreign entity operates ceases to be classified as highly inflationary, then the functional currency of that foreign entity must be identified to determine the appropriate method for translating the entity's foreign currency financial statements (Both IFRS and U.S.GAAP).

**Under IFRS:**

Under IFRS there is no specific definition of hyperinflation. However, according to IFRS, hyperinflation occurs when the cumulative inflation rate exceeds or approaches 100%. When hyperinflation is present, the foreign currency financial statements are restated for inflation and then translated using the current rate method. But unlike Current rate method in which revenues and expenses are translated using averages exchange rates, all items of balance sheet and income statement are translated using current exchange rate. This approach better represents economic reality because it reflects both the likely change in the local currency value of the non-monetary assets & liabilities as well as the actual change in the exchange rate.

Procedures required under IFRS in adjusting financial statements for inflation are as follows:

**Balance Sheet:**

1. Monetary assets and monetary liabilities e.g. cash, receivables & payables are ***not*** restated for inflation.
2. Nonmonetary assets and nonmonetary liabilities are restated for inflation using price index in terms of general price level at the balance sheet date i.e. nonmonetary assets and nonmonetary liabilities (original cost) are multiplied by restatement factor.

   Where,

   $$\text{Restatement Factor} = \frac{\text{Current year's price index}}{\text{Historical price index}}$$

   - As a result of restatement, non-monetary assets and liabilities are carried at their historical amount of purchasing power.
   - When nonmonetary items are carried at revalued amounts (e.g. PP&E), these items are restated from the date of revaluation.

3. All components of Stockholders' equity are restated by applying the change in the general price level from the beginning of the period or if later from the date of contribution to the balance sheet, that is.

$$\text{Restated Capital Stock} = \text{Capital stock original value} \times \frac{\text{Current year's price index}}{\text{Historical price index}}$$

   - As a result of restatement, stockholders' equity is carried at its historical amount of purchasing power.

**Income Statement:**

1. All income statement items are restated by applying the change in the general price index from the dates when the items were originally recorded to the balance sheet date, that is

$$\text{Restated Revenue} = \text{Revenue original value} \times \frac{\text{Current year's price index}}{\text{Average price index}}$$

2. The net purchasing power gain or loss is recognized in the income statement based on the net monetary asset or liability exposure.

- Holding cash and receivables during a period of inflation results in a ***purchasing power loss***.

$$\text{Loss from holding beginning balance in cash} = -\text{Beginning balance in cash} \times \frac{\text{Current year's price index} - \text{Historical price index}}{\text{Historical price index}}$$

$$\text{Loss from increase in cash during the year} = -\text{Increase in cash} \times \frac{\text{Current year's price index} - \text{Average price index}}{\text{Average price index}}$$

- Holding payables or borrowing money during inflation results in a ***purchasing power gain***.

$$\text{Gain from holding note payable} = \text{Notes payable} \times \frac{\text{Current year's price index} - \text{Historical price index}}{\text{Historical price index}}$$

- When a company holds a greater amount of monetary liabilities than monetary assets, ***net purchasing power gain*** arises.
- When a company holds a greater amount of monetary assets than monetary liabilities, ***net purchasing power loss*** arises.

**Limitation of Current Method in Hyperinflationary economy:**

Under the current rate method, fixed assets are translated at current exchange rates. With high rates of inflation, the foreign currency will depreciate significantly. When the historical cost of fixed assets is translated at a significantly lower current exchange rate, the dollar value of fixed assets "disappears." This problem is avoided by using temporal method in which fixed assets are translated at the historical exchange rates.

**Important to Note:**

- Only the monetary items that are not restated for inflation are exposed to inflation risk.
- In a hyperinflationary economy, translation under the all-current method will *most likely* result in relatively low balance sheet values for assets and liabilities. Translation losses will also occur.
- When exchange rate between two currencies changes by exactly the same percentage amount as the change in the general price index in the highly inflationary country, then result will be same under both IFRS and U.S.GAAP.

| | **TEMPORAL METHOD: Net Monetary Liability Exposure** | **TEMPORAL METHOD: Net Monetary Asset Exposure** | **CURRENT RATE METHOD** |
|---|---|---|---|
| Foreign Currency strengthens relative to parent's presentation currency | ▪ Revenue increases<br>▪ Assets increase<br>▪ Liabilities increase<br><br>▪ Net Income decreases<br>▪ Shareholders' equity Translation loss decreases | ▪ Revenue increases<br>▪ Assets increase<br>▪ Liabilities increase<br><br>▪ Net Income increases<br>▪ Shareholders' equity Translation gain increases | ▪ Revenue increases<br>▪ Assets increase<br>▪ Liabilities increase<br><br>▪ Net Income increases<br>▪ Shareholders' equity Positive Translation adjustment increases |
| Foreign Currency weakens relative to parent's presentation currency | ▪ Revenue decreases<br>▪ Assets decrease<br>▪ Liabilities decrease<br><br>▪ Net Income increases<br>▪ Shareholders' equity Translation gain increases | ▪ Revenue decreases<br>▪ Assets decrease<br>▪ Liabilities decrease<br><br>▪ Net Income decreases<br>▪ Shareholders' equity Translation loss decreases | ▪ Revenue decreases<br>▪ Assets decrease<br>▪ Liabilities decrease<br><br>▪ Net Income decreases<br>▪ Shareholders' equity Negative Translation adjustment decreases |

## 3.3 Illustration of Translation Methods

**Refer to: Volume 2, Reading 16.**

## 3.4 Translation Analytical Issues

Pure income statement and pure balance sheet ratios are unaffected using current rate method.

***Example:*** current ratio, quick ratio, long-term debt to capital, gross profit margin, net profit margin etc.

1. Mixed ratios are different using current rate method. ***Example:*** ROA, ROE, total assets turnover, inventory turnover, accounts receivable turnover.
2. If the foreign currency is depreciating, translated mixed ratios will be larger under current rate method than the original ratios.
3. If the foreign currency is appreciating then the translated mixed ratios will be smaller under current rate method than original ratios.
4. All ratios (either mixed or pure) are different than original ratios when Temporal method is used.
5. Only Inventory turnover ratio is same as original ratio under Temporal Method.
6. Only receivable turnover ratio is same under both temporal and current rate methods.

### Effect of Currency Exchange Rate Movement on Financial Statements

**Differences in Financial Results under different Translation Methods**

1. **Total assets** are different between the two methods because inventory and net fixed assets different as they are translated /remeasured using different exchange rates under the two methods.

- When foreign currency strengthens (weakens), total assets are larger (smaller) under the current rate method because all assets are translated at the current exchange rate.

2. **Total equity:** A positive (negative) translation adjustment reported on the balance sheet under the current rate method results in a much larger (smaller) amount of total equity under the current rate method.
3. **Income before translation gain/loss** is different between the two methods because COGS and depreciation are translated /remeasured using different exchange rates under the two methods.
4. **Net income** is different between the two methods because
   - **a)** COGS and depreciation are translated /remeasured using different exchange rates under the two methods.
   - **b)** The gain/loss recognized under the two methods are reported in different financial statements i.e. in current method it is reported in equity as part of CTA while in temporal method it is recognized in income statement.
5. Both the amount and sign of **Translation gain/loss** is different between the two methods because:

- Under Current rate method, usually net asset exposure exists. Holding net asset in a depreciating environment results in a loss.
- Under temporal method, usually net monetary liability exposure exists. Holding net monetary liability in a depreciating environment results in a gain.

6. Unlike current rate method, the temporal method does not consider unrealized gains and losses on non-monetary assets and liabilities.

**NOTE:** The statement of cash flows should theoretically be the same under both methods.

Under the temporal method, notes payable are exposed to foreign exchange risk but capital stock is not. A company can avoid the translation loss related to long-term debt by using equity financing rather than debt financing.

In summary,

- When foreign currency strengthens (weakens), revenue, income, assets, liabilities and total equity reported on the parent company's consolidated financial statements will be higher (smaller) under the current rate method.
- When foreign currency strengthens (weakens), revenue, assets, and liabilities reported on the parent company's consolidated financial statements will be higher (smaller) under the temporal method. However, due to the translation loss (gain) associated with net monetary liability position, net income and stockholders' equity will be lower (higher) under temporal method.

**Practice: Example 5 & 6, Volume 2, Reading 16.**

**Differences in Financial Ratios under different Translation Methods**

**When the local currency is depreciating:**

1. ***Gross Profit and Gross profit margin*** will be lower under Temporal Method relative to Current Rate Method because:

- Sales under both methods are converted at the average rate.
- COGS is converted at the historical rate under the temporal method; as a result, COGS will be higher under temporal method

2. ***Total asset turnover ratio (sales / total assets)*** will be lower under Temporal Method relative to Current Rate Method because:

- Sales are same under both methods because sales are converted at the average rate under both methods.
- Non-monetary assets are converted at the historical rate using the temporal method and the current rate under the all-current method. Therefore, total assets will be lower under the all-current method.

3. Both the ***debt-to-assets and debt-to-equity ratios*** will be lower under the temporal method versus the all-current method because:

- Under both methods, long term debt and accounts payable are translated at the current exchange rate.
- The equity value will be higher under the temporal method where mixed rates are used for translation.
- Assets under the temporal method are also effectively translated at a mixed rate and at the current rate under the current rate method. Since the currency is depreciating, the asset value will be higher under the temporal method.

4. **Receivables turnover** is the same under both translation methods because under both methods, sales are translated at the average exchange rate and receivables are translated at the current exchange rate.
5. **Current ratio** will be lower under current rate method because inventory is translated at the current exchange rate, which is lower than the historical rate whereas in temporal method, inventory is translated at historical exchange rate.
6. **Interest coverage ratio** will be lower under temporal method because EBIT will be lower under temporal method; interest payments will be same under both methods.
7. **Inventory turnover ratio** will be lower under temporal method because under temporal method (unlike current rate method), COGS and inventory are translated at historical exchange rate, which is higher than the current exchange rate.
8. **Fixed asset turnover ratio** will be lower under temporal method because under temporal method, PP&E are translated at historical exchange rate, which is higher than the current exchange rate; whereas under current rate method, PP&E are translated at current exchange rate.
9. **Return on assets** will be greater under temporal method because under depreciating foreign/local currency environment, both net income and total assets will be higher under temporal method compared to current rate method because IFRS and U.S.GAAP require companies to include the translation gain/loss in net income when the temporal method is used.

- When local currency depreciates and there is net liability exposure (monetary liabilities > monetary assets), translation gain is reported.

10. **Return on equity** will be lower under temporal method because both net income and total equity will be lower under temporal method compared to current rate method.

**NOTE:** When the local currency is appreciating, all results discussed above will be opposite.

**Practice: Example 7, Volume 2, Reading 16.**

## 3.6 Companies Use Both Translation Methods at the Same Time

Under both IFRS and U.S.GAAP, multinationals can use both current rate and temporal methods of translation at a single point in time when some foreign subsidiaries have foreign currency as their functional currency and some have parent's presentation currency as their functional currency. In such cases, consolidated financial statements of a multinational will have both net translation gain/loss (from translation using temporal method) and a cumulative translation adjustment (from translation using the current rate method).

Two companies operating in the same industry may apply different judgment in determining the functional currency of foreign operations, which creates comparability problem with regard to income reported by these companies. This problem can be mitigated by adding the translation adjustments reported in stockholders' equity to net income for both companies.

However, including translation adjustments into adjusted net income may not provide truly comparable income

because different translation methods tend to have different effect on reported net income.

### 3.7 Disclosures Related to Translation Methods (and 2.3 Disclosures Related to Foreign Currency Transaction Gains and Losses)

Both IFRS and U.S.GAAP require following two disclosures related to foreign currency translation:

1) The amount of exchange differences recognized in Net Income. It consists of:
   - Foreign currency ***transaction*** gains and losses, and
   - ***Translation*** gains and losses resulting from application of the temporal method.
2) The amount of cumulative translation adjustment reported in a separate component of equity along with a reconciliation of the amount of cumulative translation adjustment at the beginning and end of the period.

U.S.GAAP also requires disclosure of the amount of translation adjustment transferred from stockholders' equity and included in current net income as a result of the disposal of a foreign entity.

Under both standards, companies are required to prepare a statement of comprehensive income in which unrealized gains and losses deferred in stockholders' equity are included in a measure of comprehensive income.

However, companies are not required to separately disclose the component of translation gain or loss resulting from foreign currency transactions and the component resulting from application of temporal method.

Disclosures related to foreign currency translation are generally available in both MD&A and Notes to Financial Statements sections of an annual report.

**Practice: Example 8 & 9, Volume 2, Reading 16.**

**Definitions:**

- **Clean Surplus Accounting:** It is the accounting in which all changes in shareholders' equity (including translation adjustments) arising from other than owner transactions are reflected directly in income statement.
- **Dirty Surplus Accounting:** It is the accounting in which some items of comprehensive income bypass the income statement and are reflected as a direct adjustment to shareholders' equity. E.g. translation adjustment arising from foreign currency determined as the functional currency of a foreign subsidiary.

## 4. MULTINATIONAL OPERATIONS AND A COMPANY'S EFFECTIVE TAX RATE

**Transfer pricing:**

It is the "system of laws and practices used by countries to ensure that arm's length prices are charged or paid upon the transfer of physical goods and intangible property or supply of services in transactions undertaken between associated enterprises located in the same or different tax jurisdictions".

**Tax credit:**

Tax treaties grant a credit for taxes paid to another country by preventing double-taxation of corporate profits. That is, a multinational company is liable to pay taxes on the foreign income only to the extent that the home country's corporate tax rate is greater than the foreign tax rate on that income.

Whether and when a company also pays income taxes in its home country depends on the specific tax regime.

For example, in the U.S., multinational companies are obligated to pay only residual tax on foreign income after applying a credit for foreign taxes paid on that same income. In addition, much of the foreign income earned by U.S. multinationals is not taxed until it is repatriated.

**Relationship between tax expense and accounting profit:**

The relationship between tax expense and accounting profit can be explained through reconciliation between the average effective tax rate and the relevant statutory rate.

$$\text{Average effective tax rate} = \frac{\text{Tax Expense}}{\text{Pretax Accounting Profits}}$$

The effective tax rate impact of foreign taxes may change with the changes in the applicable tax rates

and/or changes in the mix of profits earned in different jurisdictions.

- The line item "*Effect of tax rates in foreign jurisdictions*" in the notes to financial statements indicates increase or decrease in the company's effective tax rate.
- The line item "*Earnings taxed at other than U.S. statutory rate*" in the notes to financial statements indicates increase or decrease in the company's effective tax rate.
- Increase in effective tax rate may indicate that company's profit mix shifted to countries with higher marginal tax rates or it may indicate that the marginal tax rates increased in the countries in which the company earns profits.

**Practice: Example 10, Volume 2, Reading 16.**

## 5. ADDITIONAL DISCLOSURES ON THE EFFECTS OF FOREIGN CURRENCY

### 5.1 Disclosures Related to Sales Growth

For a multinational company, sales growth rate depends on three factors i.e. changes in volume, changes in price and changes in the exchange rates between the reporting currency and the currency in which sales are made.

Growth in sales associated with changes in volume or price is more sustainable than growth in sales associated with changes in exchange rates because a company's management tends to have greater control over growth in sales driven by increase in volume or increase in prices than by changes on exchange rates. Hence, it is important to take into account the impact of foreign currency on sales growth both for forecasting future performance and for evaluating a management team's historical performance.

Disclosures about the effect of exchange rates on sales growth are often available in the MD&A.

**Organic sales growth:** An organic sales growth is a non-GAAP measure of sales growth that considers the impacts of acquisitions, divestitures and foreign exchange from year-over-year comparisons.

**Organic sales growth = Net sales growth + Foreign exchange impact + Acquisition/Divestiture impact**

Organic sales growth measure can be used to understand the underlying sales trends and to evaluate senior management performance and compensation.

**Practice: Example 11, Volume 2, Reading 16.**

### 5.2 Disclosures Related to Major Sources of Foreign Exchange Risk

Disclosures related to the effects of currency fluctuations generally include sensitivity analyses and cash-glow-at-risk approach.

- **Sensitivity analysis** involves determining the major sources of foreign exchange risk given the company's countries of operations and their impact on company's profits for a given change in exchange rates.
- **Cash-flow-at-risk approach:** It involves allocating the impact of potential exchange rate fluctuations to operating cash flows on the basis of probability distributions. The relevant probability distributions are determined based on the volatilities and correlations. The net cash flow surplus represents an uncovered risk position.

**End of Reading Practice Problems: Practice all the questions given at the end of Reading.**

## 1. INTRODUCTION

Financial institutions offer numerous financial products and services such as:

- offering asset and risk management services
- facilitating transactions involving cash, securities and other financial assets
- acting as intermediaries between capital providers and capital consumers

Typically, services offered by one institution overlap those of other institutions. The primary focus of this reading is on banks and insurance companies.

Financial institutions

| | | |
|---|---|---|
| Commercial banks | Investment banks | Clearing houses |
| Brokers | Dealers | Exchanges |
| Depositories | Investment managers | Financial advisors |
| Insurance companies | Credit card companies | Mortgage companies |

## 2. WHAT MAKE FINANCIAL INSTITUTIONS DIFFERENT?

Some distinctive features that separate financial institutions from other organizations are given below.

**Systemic importance**
Smooth and steady functioning of financial institutions specially banks is vital for a sound economy. A bank's intermediary role between borrowers and depositors, creates a network of financial inter-linkages among many entities involving households, corporations, governments, other financial institutions etc. Therefore, any negligence or failure of a bank (specially a larger one) adversely damage other financial or non-financial institutions and can potentially affect the entire financial system.

**Systematic risk**
Systematic risk is a risk of interruption in financial services as a result of failure of all or parts of the financial system, which can negatively affect the overall economy. This contagion effect spread rapidly and cause distress to other sectors and regions, a condition called financial contagion.

**Regulations**
As financial institutions are systematically very important to the entire economy, therefore, activities and functions of such entities are heavily regulated e.g. capital requirements, liquidity requirements, riskiness of assets etc.

**Liabilities**
A bank's liabilities are mainly comprised of deposits. When a bank fails to honor deposits or even the likelihood of a bank's default on its deposits may result in bank run that negatively affect the whole economy and may cause financial contagion. Deposits of banks (up to certain limits) are often insured by the pertinent governments.

**Financial versus tangible assets**
Assets of financial institutions are mainly '*financial assets*' whereas assets of non-financial institutions are mostly '*tangible assets*'. Unlike tangible assets, financial assets are often measured at fair value and are exposed to a variety of risks such as credit risks, liquidity risks, market risks, interest rate risks etc.

Banks and insurers are the main focus of this reading, however, exhibit below briefly lists various types of financial institutions.

<table>
<tr><th colspan="6">Types of Financial Institutions</th></tr>
<tr><th colspan="4">Institutions that provide basic Financial Services</th><th>Intermediaries within the Investment Industry</th><th>Insurers</th></tr>
<tr><td colspan="4" rowspan="2">i) Commercial banks</td><td>i) Managers of pooled investment vehicles such as:</td><td rowspan="2">i) Property and casualty (P&C) insurance companies</td></tr>
<tr><td>open-end mutual funds | closed-end funds | exchange-traded funds</td></tr>
<tr><td colspan="4">ii) Credit unions, cooperative & mutual banks</td><td>ii) Hedge funds</td><td>ii) Life and health (L&H) insurers</td></tr>
<tr><td colspan="4">iii) Specialized financial service providers:</td><td>iii) Brokers and dealers</td><td>iii) Reinsurance companies</td></tr>
<tr><td>Building societies and savings & loan associations</td><td>Mortgage banks</td><td>Trust banks</td><td>Online payment companies</td><td></td><td></td></tr>
</table>

**Note:**

- The list given above is not exhaustive.
- Structure of financial services may vary across countries and service overlaps may exist.
- The exhibit excludes supra-national organizations - organizations created by member countries to achieve some specific mission e.g. World Bank, Asian Development Bank, Asian Infrastructure Investment Bank.

## 2.1 Global Organizations

Considering international aspects, banks differ considerably from insurance sector.

- Banks exhibit larger portion of global financial system compared to insurance sector except reinsurance (which is mostly international).
- Typically, foreign branches of insurance companies are required to maintain assets adequate enough to cover the related liabilities in that jurisdiction.

The purpose of establishing global and regional regulatory frameworks includes:

- minimizing systematic risk
- synchronizing regulatory rules, standards and oversight
- reducing regulatory arbitrage (to curb multinational firms' profit-making ability based on differences in jurisdictions' regulatory systems)

**Basel Committee on Banking Supervision**
It is a standing committee of the Bank for International Settlements with members from central bank and entities around the world to support global financial stability.

The purpose of Basel III framework developed by the Basel Committee is

"to improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, improve risk management and governance, and strengthen banks' transparency and disclosures."

Ref: http: //www.bis.com

Three important features of Basel III are:

**Minimum capital requirement**
Usually expressed as % of bank's risk-weighted assets. The purpose is to restrain bank from taking excess leverage to protect depositors and promote stability of financial system.

**Minimum liquidity**
A bank should maintain enough high-quality liquid assets to cover its liquidity requirements in a 30-day liquidity stress scenario.

**Stable funding**
A bank should maintain a minimum amount of stable funds relative to its liquidity needs over a one-year time horizon. Stable funding is based on characteristics such as:

- **tenor of deposit** (longer-term deposits are considered more stable than sorter-term deposits).
- **type of depositor** (consumer deposits are considered more stable than funds from interbank markets)

Primary goals of Basel III are:

- preventing banks from taking excessive leverage
- insisting banks to develop processes to improve their risk assessment, asset quality, capital base etc.

Some other important organizations serving for global financial stability are:

- The Financial Stability Board
- The International Association of Deposit Insurers
- The International Association of Insurance Supervisors (IAIS)
- The International Organization of Securities Commissions (IOSCO)s

Basel committee, IAIS and IOSCO together created a joint forum to deal with issues common to banking, insurance and securities sectors.

### 2.2 Individual Jurisdictions' Regulatory Authorities

Global organizations work with individual jurisdictions' regulatory bodies because these bodies have more power and influence on operations of financial institutions in that jurisdiction.

Globally, many regulatory organizations work together to achieve the same goals (primarily, financial stability) and several times their functions and responsibilities intersect and overlap.

## 3. ANALYZING A BANK

### 3.1 The CAMELS Approach

"CAMELS", a widely used bank rating approach, is an acronym for:

i. **C**apital adequacy
ii. **A**sset quality
iii. **M**anagement capabilities
iv. **E**arnings sufficiency
v. **L**iquidity position
vi. **S**ensitivity to market risk

After evaluating a bank using CAMELS approach, a numerical rating (from 1 to 5) is assigned to each component. Rating 1 signifies the best practices in risk management and performance, whereas rating 5 represents the poor risk management practices.

A "***composite rating***" for the bank is constructed using the component ratings (six factors) and examiner's judgement by means of some criteria. Therefore, two examiners may compute very different composite rating for the same bank even if each component rating is same.

Details of the six components of CAMELS approach are given below:

#### 3.1.1) Capital Adequacy

Banks are required to maintain adequate capital to absorb potential losses without increasing the probability of liquidation or becoming financially weak.

Capital adequacy is expressed as proportion of a bank's risk-weighted assets funded by its capital. Riskier assets typically have higher weightings. Off-balance sheet exposures are also included in risk-weighted assets.

Typically, risk-weighting for
- cash is 0%
- corporate loans is 100%
- riskier-assets (such as loans on high-volatility commercial real-estate or loans more than 90 day past due) are greater than 100%

According to Basel settlement, a bank's capital is divided into two types: tier 1 capital and tier 2 capital.

**Tier 1 capital** (bank's core capital) consists of:

- **Common equity** – common stock, retained earnings, issuance surplus, other comprehensive income, adjustments such as deduction of intangible assets, deferred tax assets.

- **Other Tier 1 Capital** – instruments issued by banks that meet certain criteria e.g. instrument is subordinate to such obligations as deposits, have no fixed maturity, not have to pay any dividends, interest which is, completely at the discretion of bank.

**Tier 2 capital** (bank's supplementary capital) consists of:

- Instruments that are subordinate to depositors and bank's creditors, have original minimum maturity of five years and attain certain other requirements.

Globally, Basel III minimum capital requirements are:

- Total Capital must be at least 8% of risk-weighted assets.
- Total Tier 1 Capital must be at least 6% of risk-weighted assets
- Common equity Tier 1 Capital must be at least 4.5% of risk-weighted assets

However, individual countries' regulators are authorized to set their own minimum capital requirements within their jurisdictions.

**Practice: Example 1, curriculum, volume 2, Reading 17.**

### 3.1.2) Asset Quality

Bank's assets quality is determined:

- particularly by the *current and potential credit risks* associated with those assets
- broadly by the *strength of its overall risk management process* to generate those assets.

1. **Loans** – the largest portion of a bank's assets
   Loans are measured at amortized cost and are reported as net of allowances for loan losses.

   Quality of loans depends on:
   - creditworthiness of borrowers
   - appropriate adjustments for expected loan losses

   In interpreting a bank's balance sheet, analysts should recognize line items such as:
   - loans and advances to banks
   - loans and advances to customers
   - reverse repurchase agreements (collateralized loans made by banks to borrowers)

   Analyst should not confuse the terms '*assets held for sale*' with the '*assets available for sale*'.
   - Assets held for sale are assets related to discontinued operation which bank wishes to liquidate through sale.
   - Assets available for sale is investment securities-related term (described in next section

2. **Investment in securities issued by other entities** – a substantial portion of bank's assets
   Different securities are measured differently depending on how these securities are initially reported and how changes in their value are later recounted.

**Under IFRS**, securities are classified into three groups based on the companies' business model and cash flows of the assets. Three categories are, securities measured at:

- amortized cost
- fair value through other comprehensive income
- fair value through profit and loss

**Under US GAAP,** all equity investments (except those reported under the equity method or those that result in consolidation of investee) are measured at
- fair value with changes recognized in net income

**Note:**
Credit risk evaluation and diversification across entire asset base (including loans, investment securities, other balance sheet/ off-balance sheet trading activities) is fundamental to determine a bank's asset quality.

**Practice: Example 2 and 3, curriculum, volume 2, Reading 17.**

### 3.1.3.) Management Capabilities

Effective management is one of the most fundamental requirements for all entities including financial institutions and is a reliable indicator of an organization's overall performance. Effective management is characterized as exploring profit opportunities while simultaneously managing risks.

Effective management capabilities require a wide range of skills such as:

- effective procedures for measuring and monitoring risks
- compliance with laws and regulations
- strong corporate governance structure
- flawless internal controls
- excellent financial reporting quality
- transparent management communication

Identifying and controlling risks (e.g. credit risk, market risk, legal risk, operating risk etc.) is highly critical for financial institutions.

### 3.1.4) Earnings

Banks should generate adequate earnings to provide returns on capital (in the form of capital appreciation or cash distribution) to their shareholders. High quality earnings indicate earnings derived from sustainable sources.

To determine a bank's sustainable earnings, it is important to examine the composition of earnings and various estimates used in the bank's financial statements.

**Composition of earnings:**

Three major sources of a bank's earnings are:

a) Net interest income (difference between interest earned on loans and interest paid on deposits)
b) Service income
c) Trading income

Typically, net interest income and service income are more sustainable sources while trading income is considered to be volatile. Excessive interest rate exposure may result in volatile net interest income.

**Estimating loan impairment allowances** is an important consideration for banks. Some important assessments of losses on

- *collective loan portfolio* may include historical loan losses and management judgement for adjustments in future losses.
- *individual loan portfolio* may include the probability of borrower's default and value of any collateral.

**Estimating value of financial assets and liabilities measured at fair value:**
Fair value estimation for valuing financial assets and liabilities that are:

- based on observable market prices require *little* judgment.
- *not* based of observable market prices require *high level* of judgement.

Both IFRS and US GAAP use *'fair value hierarchy'* framework, which categorizes financial assets and liabilities into three levels (level 1, 2, 3) based on the inputs used to measure the fair value.

**Level 1 inputs are:**
- quoted prices for identical financial assets or liabilities in active markets.

**Level 2 inputs are:**
- observable prices for identical financial instruments in active markets
- quoted prices for similar financial instruments in active markets.
- quoted prices for identical financial instruments in markets that are not active, and by observable inputs e.g. interest rates, yield curves, credit spreads, implied volatility etc.

**Level 3 inputs are:**
- unobservable and subjective estimates as a result the fair value of financial instruments is based on some financial model. Estimated values of financial instruments may differ depending on the models used.

**Other important estimates** may include recognizing:
- contingent liabilities
- probability of future taxes
- future cash flows of a business unit

### 3.1.5) Liquidity Position

Adequate liquidity is indispensable for banks because of their systematic importance to the economy and the fact that deposits constitute the primary component of a bank's liability.

In the aftermath of 2008 financial crises, Basel III introduce global liquidity standard because during the crises many banks across the globe face liquidity crunch despite having adequate capital base.

Basel III set the following two minimum liquidity standards

1. **Liquidity coverage ratio LCR** $\left(\frac{\textbf{highly liquid assets}}{\textbf{expected cash outflows}}\right)$ **should be minimum of 100%:**
   LCR is expressed as highly liquid assets held by banks to cover their expected cash outflows (i.e. one-month liquidity needs).

2. **Net stable funding ratio NSFR** $\left(\frac{\textbf{available stable funding}}{\textbf{required stable funding}}\right)$ **should be minimum of greater than 100%**
   NSFR is expressed as bank's available stable funding relative to required stable funding. NSFR relates the liquidity needs of bank's assets to the liquidity provided by the funding sources

- *Required stable funding* is based on the composition and maturity of *bank's asset base*
- *Available stable funding* is based on the composition and maturity of *bank's funding sources* (e.g. capital, deposits, other liabilities).

**How to calculate amount of total available stable funding**

- Bank's funding sources are divided into five categories based on five ASF (available stable funding) factors (100%, 95%, 90%, 50% and 0%) depending on the reliability of the funding source. - meaning 100% highly reliable whereas 0% unreliable.
- Amounts assigned to each category is multiplied by the ASF factor to calculate total available stable funding value, which is the sum of weighted amounts of each category.

Please refer CFA curriculum Reading 17, Exhibit 8 for details for components of ASF category.

| | |
|---|---|
| Bank's assets that require more stable funding | long-term loans |
| Bank's sources that provide more stable funding | long-dated deposits & other liabilities |

Deposits from retail customers are more stable than same maturity deposits from other counterparties.

Two important liquidity-monitoring measures characterized by Basel III are:

i. **Concentration of funding** – proportion of funding from single source. High concentration is problematic.
ii. **Contractual maturity mismatch**- mismatch of maturity dates between bank's assets and funding sources. Banks can earn net interest income by exploiting contractual maturity mismatch i.e. by borrowing short-term and lending long-term in a normal upward sloping yield curve. However, this may expose banks to liquidity risk therefore scrutinizing maturity mismatch is extremely important.

### 3.1.6.) Sensitivity to Market Risk

Banks earnings are highly sensitive to market risks due to the unique nature of their operations.

**Factors that cause sensitivity to market risks are:**

- reference rates
- changes in interest rate
- maturity mismatches between loans and deposits
- repricing frequency (mismatch of bank assets' and liabilities' repricing frequency)
- currency exposures and exchange rates
- guarantees and derivative positions

Scenario analysis and value at risks (VaR) are commonly used to measure and monitor market risk.

**Practice: Example 4,5 & 6, curriculum, volume 2, Reading 17.**

## 3.2 Other Factors Relevant to Analysis of a Bank

Two other important kind of analytical considerations not covered under CAMELs approach are:

i) banking-specific considerations
ii) considerations relevant to all entities (including banks)

### 3.2.1.) Banking-Specific Analytical Considerations Not Assessed by CAMELS

**a) Government support**

A healthy banking system is extremely important for the economic growth of a country, therefore unlike other industries, governments highly monitor, protect and support their banking system.

A sound banking system
- escalates depositor confidence
- provides reliable payment processing structure
- facilitates central banks to conduct effective monetary policy

Government agencies not only support banks for their ongoing operations but also arrange mergers during their times of financial difficulty.

During 2008 financial crises, US government support their banking system by purchasing toxic loans from banks by introducing Troubled Asset Relief Program (TARP).

The following two factors are important to evaluate whether a bank will receive support from the government?

- **Size of the bank:** Is the failure of the bank can damage the whole or part of the economy?
- **Status of the country's banking system:** Can the country's banking system handle the failure of a particular bank? or providing government support would be a quick fix?

**b) Government Ownership:**

Sometimes governments obtain significant shares of their banks through public ownership. There exist two diverging views on government ownership of banks:

- **Development view**: Government ownership of banks promotes economic growth as the government may provide persistent support and financial development.
- **Pessimistic view:** Government ownership of banks is perceived as lack of confidence in banking sector, poor ethical standards, slower financial and economic development etc.

Regardless of views mentioned above, government intervention is typically considered as a protection for investors.

**c) Mission of banking entity**

Different types of banks operate differently depending on their mission and tools they offer e.g. community banks, global banks.

Community banks primarily focus on the requirements of their local community where they operate. The performance of a community bank depends on some specific economic factors, which drive that community e.g. single large manufacturing, oil, farming, mining etc.

Global banks operate across a large geographical region and often lend and borrow worldwide. They are less exposed to single risk compared to community banks.

**d) Corporate culture**

A bank's culture may be overly risk seeking or highly risk averse or may be somewhere in between two extremes.

Some qualitative factors to assess banks' culture are:

- nature of their investment strategy and exposures
- reasons for restatement of their financial reports
- information regarding their loan loss reserves and asset write-downs

### 3.2.2.) Analytical Considerations Not Assessed by CAMELS That Are Also Relevant for Any Company

**a) Competitive environment**
The allocation of bank's capital and risks are affected by the competitive positioning i.e. how bank's management define and differentiate their organization relative to its peers.

**b) Off-balance-sheet items**
Off-balance-sheet assets and liabilities are items that do not appear on bank's balance sheet. These items are typically found in the footnotes to the financial statements. Not all off balance sheet items are scary, however, these items can hide the actual debt position of a bank.

Some off-balance sheet items that demand investors' attention are operating leases, variable interest entities or VIEs, benefit plans, assets under management (AUM).

- Operating leases are considered low-risk liabilities. Creditors can claim bank's future cash flows.
- VIEs are special purpose entities that hold certain assets, which are usually financed with special debt instruments.
- AUM are typically related to the financial institutions. Banks sometimes generate returns through management fees by managing assets of their clients.

**c) Segment information**
Segment information organize bank's operations and financials in various segments e.g. geographical segments, markets (domestic, foreign), diverse lines of businesses (consumer, industrial) etc. Such information provides investor the ability to assess capital allocation across segments.

**d) Currency exposure**
Large banks are often exposed to foreign currency exposure. Currency translation adjustments are an integral part of financial statements of global banks with number of foreign subsidiaries.

**e) Risk factors**
Investors should pay attention to the risk factors section of bank's annual reports that may otherwise be overlooked.

**f) Basel III disclosures**
Basel III disclosures requirement provides valuable information on financial institutions' risk management and regulatory issues.

## 4. ANALYZING AN INSURANCE COMPANY

**Insurance companies:**

- provide protection against adverse events
- earn revenues from premiums and investment income
- are classified as i) property and casualty (P&C) ii) life and health (L&H)

Some differences between P&H insurance and L&H insurance:

| P&C insurance | L&H insurance |
|---|---|
| short-term policies | long-term policies |
| variable & unpredictable claims | fairly predictable claims |

### 4.1 Property and Casualty Insurance Companies

Property and casualty (P&C) insurance companies receive insurance premiums (often annually) in exchange of providing risk management services (by protecting insured parties against certain losses).

Insurance companies earn profits by investing premiums during the float period. Float period refers to the time between premiums are collected and claims are paid. Therefore 'risk management' and 'investment are two important functions of insurance companies.

**Insurance companies often reduce their risks by:**

- charging adequate price to bear the losses of insured parties
- diversifying customer types, markets and kinds of policies
- hedging some portion of their risks through reinsurers

### 4.1.1.) Operations: Products and Distribution

**Property insurance** provides protection against loss or damage of properties – buildings, vehicles, environmental damage, other valuables etc. The kinds of policies vary depending on various events such as accidents, fire, theft, other calamities etc.

**Casualty insurance** a.k.a. **liability insurance** provides protection against legal liabilities that arise as a result of the insured's interaction with a third party, such as passengers, employees, strangers etc.

**Multiple peril policies** offer protection against more than one form of losses arise from various events. For example, a road accident may damage the vehicle and may cause injury to a passenger.

Property and casualty insurances may sell their products to individuals or businesses or both.

Two ways to distribute insurance are:

- **Direct writing:** Direct writers have their own staff and sell policies to people on internet through email or other channels, or through shared interest group.
- **Agency writing:** agency writers sell policies through independent agents, or insurance brokers.

### 4.1.2. Earnings Characteristics

Property and casualty insurance business is highly price sensitive (involving many competitors) and is cyclical in nature. The business goes through hard and soft pricing cycles.

**Soft-pricing market cycle is characterized by:**

- low Insurance premiums
- low profitability
- relaxed underwriting standards
- high competition
- high combined ratio $\frac{total\ insurance\ expense}{net\ premiums\ earned}$ of overall industry

As a result, players experience losses, which deplete their capital, and eventually they exit the market.

**Hard-pricing market cycle is characterized by:**

- high insurance premiums
- high profitability
- stringent underwriting standards
- low competition
- low combined ratio $\frac{total\ insurance\ expense}{net\ premiums\ earned}$ of overall industry

As a result, the increase in profitability attracts more entrants into the market. The cycle of soft and hard pricing repeats in this manner.

**P&C Insurers' operating income:**
The method of distribution affects a firm's operating cost and hence profitability. Direct writers have higher fixed costs (salaries of staff).
Agency writers have higher variable costs (commissions paid to brokers or agents).

**P&C Insurers' investing income:**
P&C insurers invest in low-return, low-risk investments. Therefore, their investing income is quite stable compared to their operating income.

An individual firm's combined ratio greater than 100 indicates underwriting losses. Combined ratio is a sum of two ratios:

i. *underwriting loss ratio* = $\frac{claims\ paid+(end.loss\ reserves-beg.loss\ reserves)}{net\ premiums\ earned}$ indicates company's **quality** of underwriting activates (decisions such as amount of on premium charged, selection of customer etc.)

ii. *underwiring expense ratio* = $\frac{underwriting\ expenses\ such\ as\ commmission,salaries}{net\ premiums\ written}$ indicates **efficiency** of company.

**"Management of loss reserves"** is highly critical for P&C insurance companies as the estimation of loss reserves requires management discretion considering historical information and estimates about future losses.

Too optimistic **estimation** (underestimation of loss reserves) may lead to underpricing of insurance policies or undercharging of risks and may cause insolvency of the company.

Estimation of loss reserve becomes particularly problematic for liabilities spread over long **time period** (One example: more generous payouts for asbestos exposure injuries).

Following are some ratios to analyze P&C insurer's profitability.

| Ratios to analyze P&C Insurers' Profitability | | |
|---|---|---|
| **Loss and loss adjustment expense ratio** | $\frac{(loss\ expense + loss\ adjustment\ expense)}{net\ premiums\ earned}$ | • Indicates success of an underwriter in estimating the risks insured.<br>• Lower the ratio, higher the degree of success |
| **Underwriting expense ratio** | $\frac{underwriting\ expense}{net\ premium\ written}$ | • Indicates how efficiently the underwriter spent money in obtaining new premiums<br>• Lower the ratio, higher the success |
| **Combined ratio** | **Loss & loss adjustment expense ratio + Underwriting expense ratio** | • Indicated overall efficiency of underwriting operation.<br>• Less than 100 value is considered efficient |
| **Dividends to policyholders (shareholders) ratio** | $\frac{dividends\ to\ policyholders\ (shareholders)}{net\ premiums\ earned}$ | Measures liquidity i.e. dividends paid versus premium earned in the same period. |
| **Combined ratio after dividends** | **Combined ratio – Dividends to policyholders (shareholders) ratio** | A stricter measure of efficiency than combined ratio. |

### 4.1.3.) Investment Returns:

P&C insurers invest premiums conservatively, typically in low risk, steady return investments, because they operate in an environment of high:

- competition
- uncertainty (about the risks they cover)

Investors should evaluate the concentration of insurer's investments by type, maturity, credit quality, geographic location etc.

$\frac{total\ investment\ income}{cash\ \&\ invested\ assets}$ is used to estimate the investment performance.

To understand the relative importance of unrealized capital gains, investors should add/remove unrealized capital gains from total investment income in the numerator

### 4.1.4.) Liquidity

As the payouts of P&C insurers are highly uncertain and their business requires high level of liquidity, therefore, they invest in highly liquid securities.

Fair value hierarchy of firms' investment securities determines their liquidity position i.e. how much portion of portfolio is invested in level 1 securities, level 2 securities and level 3 securities.

- Level 1 are highly liquid investments (values are based on readily available prices).
- Level 2 are less liquid investments (values are inferred from similar securities).
- Level 3 are illiquid investments (values are based on models and assumptions).

### 4.1.5) Capitalization

There are no global risk-based capital standards for insurers, however, in various jurisdictions local authorities impose some minimum capital requirements.

## 4.2 Life and Health Insurance Companies

Life and health (L&H) insurance companies generate revenues through:

- Premiums (by selling life and health insurances and other investment products/services)
- Returns on investments

### 4.2.1) Operations: Products and Distribution

**Life insurers** offer variety of products such as:

- Term insurance policy compensates the beneficiary if the insured dies within the term of the contract.
- Some policies not only provide death benefits but also work as saving vehicles.
- Some life policies offer investment products linked to market returns.

**Health insurers** offer various insurance products designed to cover different health-related needs e.g. coverage of medical expenses, illness, injuries etc.

**L&H insurers** distribute their products either directly to consumers or through agents. L&H insurance companies can be diversified across revenue sources, product types, geographical regions, investment assets etc.

### 4.2.2.) Earnings Characteristics

Major expenses of L&H insurers are benefit payments to policyholders and contract surrenders. Surrender value is the amount that insurers pay when policyholders decide to exit the contact.

Earnings of L&H insurance companies are affected by a number of accounting items that require management judgement and estimates such as actuarial assumptions, amortization of capitalized costs, securities valuation etc.

Some common ratios used to measure the profitability of L&H insurance companies are:

- return on assets (ROA)
- return on equity (ROE)
- growth and volatility of capital
- book value per share

Some additional ratios may include:

- pre- and post-tax operating margin,
- pre- and post-tax operating ROA
- pre- and post-tax operating ROE

Some measures specific to insurance business are:

- total benefits paid as a % of net premiums written and deposits.
- commissions and expenses incurred as a % of net premiums written and deposits.

The accounting treatment of certain items severely affect firms' earnings. For example, the mismatch between the valuation approach of assets and liabilities can significantly distort the L&H companies' reported earnings.

### 4.2.3.) Investment Returns

Key features to assess L&H companies' investment returns are diversification, investment performance, interest rate risks and liquidity.

Somewhat predictable claims of L&H insurance businesses allow them to invest in risky assets to seek higher returns.

The portfolio performance of L&H companies is measured by ratio of $\frac{investment\ income}{invested\ assets}$. The numerator may or may not include unrealized capital gains or losses.

Interest rate risk is evaluated by measuring the duration gap between company's assets and liabilities.

### 4.2.4.) Liquidity

Liquidity needs of L&H insurers are determined by reviewing the amount of benefit payments, policy surrenders, nature of their products and the liquidity of their investment portfolio.

L&H insurance companies' sources of liquidity include their operating cash flows and liquid investments.

**Note:** Current ratio is not applicable to L&H insurance companies because their assets are not classified in the balance sheet as current and non-current.

### 4.2.5.) Capitalization

There are no global risk-based capital standards for L&H companies, however, in various jurisdictions, local authorities impose some minimum capital requirements.

**Compared to P&C insurers, L&H companies:**

- face lower capital requirements because their claims are more predictable.
- incorporate interest rate risk in their risk-based capital calculation because life insurance products are highly exposed to interest rate risk.

**Practice: Example 7 and 8, curriculum volume 2, Reading 17.**

**Practice:**

- **End of chapter question from curriculum, volume 2 Reading 17.**
- **Questions and item-sets from FinQuiz Question-bank.**

# 1. INTRODUCTION

**Qualitative Factors that contribute negative view on a company:**

- Company's return on capital < comparable companies' return on capital.
- Company's return on capital < company's own cost of capital.

**Quantitative Factors that contribute negative view on a company:**

- Company's aggressive revenue recognition policy.
- Complex and difficult to understand disclosures on related-party transactions.
- One-time earnings boosting gains.

# 2. Quality of Financial Reports

## 2.1 Conceptual Framework for Assessing the Quality of Financial Reports

***Financial Reporting is of high-quality*** when it provides relevant, fair, and decision-useful information. Financial reporting is of low quality when the reported information misrepresents economic reality.

- HIGH financial reporting quality enables investors to assess company's performance and to evaluate earnings quality.

***Results or earnings are of high-quality*** when earnings and cash that are generated by the company's actual economic activities provide an adequate level of return on investment (i.e., a return equal to or in excess of company's cost of capital) and that are likely to sustain in the future.

- HIGH earnings quality increases company value.
  Accounting choices are "Aggressive" (Conservative) if they result in:
- Higher (lower) reported performance in the current period.

**Earnings management or Earnings smoothing** is another type of accounting bias which involves decreasing earning volatility by understating earnings or overstating expenses in periods when a company's operations are performing well and overstating earnings or understating expenses in periods when the company's operations are not doing well.

## 2.2 Potential Problems that Affect the Quality of Financial Reports

### 2.2.1) Reported Amounts and Timing of Recognition

Following are some examples of accounting choices and their effects in the current period:

**A.** Aggressive, premature, and fictitious revenue recognition results in:

- Overstated income
- Overstated equity
- Overstated assets

**B.** Conservative revenue recognition, such as deferred recognition of revenue, results in

- Understated net income
- Understated equity
- Understated assets

**C.** Omission and delayed recognition of expenses results in

- Understated expenses
- Overstated income
- Overstated equity
- Overstated assets, and/or
- Understated liabilities

**D.** An understatement of bad debt expense results in overstated accounts receivable.

**E.** Understated depreciation or amortization expense or assuming long depreciable lives results in the overstatement of the related long-lived asset.

**F.** Understated interest, taxes, or other expenses result in the understatement of the related liability: accrued interest payable, taxes payable, or other payable.

**G.** Understatement of contingent liabilities results in understated expenses, overstated income or overstated other comprehensive income and thus overstated equity.

**H.** Overstatement of financial assets and understatement of financial liabilities, reported at fair value results in overstated unrealized gains or understated unrealized losses and thus, overstated equity.

**I.** Cash flow from operations may be increased by:

- Deferring payments on payables
- Accelerating payments from customers (i.e. decrease in accounts receivable)
- Deferring purchases of inventory
- Deferring other expenditures related to operations, such as maintenance and research
- Capitalizing expenditures in investing activities, using sales and leaseback, and increases in bank overdrafts.

**Practice: Example 1, Reading 18.**

**2.2.2) Classification**

Classification in this context refers to re-classification of items to manipulate earnings. Some of the examples of classification shifting are as below:

- Reclassifying accounts receivable to hide liquidity or revenue collection issues. For example, in order to report lower accounts receivable balance, a company may remove account receivable from the balance sheet by selling them externally or transferring them to a controlled entity, converting them to notes receivable, or reclassifying them within the balance sheet, such as by reporting them as long-term receivables.
- Reclassifying revenues from non-core operations as core or operating revenue to inflate the reported amounts of sustainable income.
- Reclassifying operating expenses as non-operating expenses to inflate the reported amounts of sustainable income.
- Inflating operating income by netting non-operating gains from the sale of investments and discontinued operations against unrelated operating expenses.
- Reclassifying intellectual property income as an offset to selling, general, and administrative expenses in order to understate operating expenses and to overstate core earnings.

**Examples of Potential Issues, possible choices and warning signs to detect them**:

- Operating income may be overstated by employing "channel stuffing" (inflating revenues by enticing customers to order products than they would otherwise not order by offering them discounts or generous terms, by capitalizing expenditures rather than expenses, use of operating leases by lessee. Reporting gains through net income and losses through other comprehensive income also results in overstated net income.
  - One of the indications of overstated operating income is growth in company's revenue being higher than that of industry or peers.
- Revenue recognition may be accelerated by using "bill and hold sales" (where a customer agrees to purchase the goods but the seller retains physical possession until the customer requests shipment to designated locations).
  - If there is an increase in discounts to and returns from customers and when growth rate in receivables is greater than that of revenue, it indicates an accelerated revenue recognition.
- If for a non-seasonal business a large proportion of revenue is reported in final quarter of year, it may indicate misclassification of revenue, gains, expenses, or losses. Similarly, when cash flow from operations is consistently lower than operating income, it is also a signal of misclassification of revenue, gains, expenses, or losses.
- A lessor can overstate its net income by using finance (capital) lease.
- Misstatement of balance sheet items include over or understatement of assets (i.e. through classification from current assets to non-current assets, understating identifiable assets and overstating goodwill), over or under statement of liabilities (i.e. through over understating reserves and allowances).
- Misstatement of balance sheet items can be detected by analyzing whether there is any inconsistency in model inputs when measuring fair value of assets compared with that of liabilities.

**2.2.3) Quality Issues and Mergers and Acquisitions**

- An acquirer's managers may choose to increase their reported earnings prior to the acquisition to inflate the value of shares being used to pay for the acquisition. Similarly, the acquirer's managers may try to boost earnings after an acquisition in an attempt to positively influence investors' opinion of the acquisition.
- The target company's managers may choose to increase their reported earnings to inflate the value of their company.
- Acquisition tends to complicates financial statements of an acquirer by reducing comparability and consistency. Hence, acquisition is mostly made by companies engaged in intentional misreporting.
- An acquirer may tend to classify most of the value of an acquisition as goodwill or in other words, may try to understate the value of amortizable

intangible assets or fair value of assets in order to avoid recording future amortization expense. Goodwill is subject to impairment charge, which is non-recurring, non-cash expense. By overstating goodwill in an acquisition, an acquirer may postpone recognition of an uneconomic acquisition until impairment charges on the goodwill are recorded.

**NOTE:** When restructuring charge and/or an impairment charge are recurring, an analyst should "normalize" earnings spreading the current restructuring/impairment charge(s) over past periods as well as the current period. Whereas, when restructuring charge and/or an impairment charge are one-off, then earnings should be normalized by excluding the item from earnings.

**2.2.4) Financial Reporting that Diverges from Economic Reality despite Compliance with Accounting Rules**

***Below are few examples of financial reporting that diverges from economic reality despite compliance with accounting rules:***

- When an asset is purchased on operating lease basis, no asset is reported the company's balance sheet and only the lease payments are reported in the income statement. Hence, use of operating lease, although allowed in accounting standards, does not fully capture the economic effects of the transaction.
- R&D produces assets that produce future benefits but under accounting standards, it is not permitted to capitalize R&D expense.
- When marketable securities are classified as "available for sale", changes in fair value are reported in other comprehensive income.
- When marketable securities are classified as "held for trading", changes in fair value are reported in net income.
- The amount of sales order backlog is not recognized as an asset on the company's balance sheet. However, when the amount of sales order backlog is large, it is typically discussed in the management commentary.

***Following are examples of items that are reported in other comprehensive income (OCI) rather than net income and thus create comparability issues for analysts.***

- Unrealized holding gains and losses on certain investments in equity securities,
- Unrealized holding gains (and subsequent losses) on items of property and equipment for which the "revaluation option" is elected (IFRS only)
- Effects on owners' equity resulting from the translation of the foreign currency-denominated financial statements of a foreign operation to the reporting currency of the consolidated entity,
- Certain changes to net pension liability or asset, and gains and losses on derivative financial instruments (and certain foreign currency denominated non-derivative financial instruments) accounted for as a hedge of future cash flows.

# 3. Evaluating the Quality of Financial Reports

## 3.1 General Steps to Evaluate the Quality of Financial Reports

| | |
|---|---|
| **Understand the company & its industry** | • Understanding the company and its industry helps an analyst to determine which accounting principles are appropriate and which financial metrics are important. ` |
| **Analyze company's management** | • An analyst must analyze company's management by reviewing disclosures about compensation, insider transactions, related party transactions etc to evaluate any incentives available to management to misreport. |
| **Identify accounting rules where judgment is involved** | • An analyst must identify accounting rules which involve significant management judgment. |
| **Compare performance** | • Compare company'sfinancial statements and significant disclosures in the current year's report with the financial statements and significant disclosures in the prior year's report.<br>• Compare company's accounting policies with its closest competitors.<br>• Compare company's performance using ratio analysis with its closest competitors. |
| **Evaluate quality of financial reporting** | • Declining receivables turnover may indicate accelerated revenue recognition or insufficient allowance for doubtful accounts.<br>• Declining receivables turnover may be a signal of an obsolete inventory.<br>• Cash flow from operations being less than net income on consistent basis may indicate use of aggressive accrual accounting policies . |
| **Separately evaluate performance of business segments** | • An analyst should evaluate inventory, sales, and expenses of each segment separately to identify a company is positively exposed to which geographic region or product segment . |
| **Assess the likelihood of misreportin g** | • An analyst should use appropriate quantitative tools to assess the likelihood of misreporting. |

## 3.2 Quantitative Tools to Assess the Likelihood of Misreporting

### 3.2.1) Beneish Model

The probability of manipulation (M-score) is estimated using a Probit model:

**M-score = –4.84 + 0.920 (DSR) + 0.528 (GMI) + 0.404 (AQI) + 0.892 (SGI) + 0.115 (DEPI) – 0.172 (SGAI) + 4.670 (Accruals) – 0.327 (LEVI)**

Where,

- **M-score =** Score indicating probability of earnings manipulation. The M-score is a normally distributed

random variable with a mean of 0 and a standard deviation of 1.0. The higher the value of M-score (i.e. the lesser negative number), the higher the probability of earnings manipulation.

- **DSR (days sales receivable index) =** (Receivables t/Sales t) / (Receivables t–1/Sales t–1)
  - Higher value of DSR indicates that receivables as a percentage of sales have increased. This increase may be a warning sign of inappropriate revenue recognition.
- **GMI (gross margin index) =** Gross margin t–1 / Gross margin t
  - Higher value of GMI indicates that gross margins have decreased compared to last year. This decrease may predispose companies to inflate earnings.
- **AQI (asset quality index) =** [1 – (Property, plant & equipment at time t+ Current assets at time t)/Total assets at time t] / [1 – (Property, plant & equipment at time t–1+ Current Assets at time t–1)/Total Assets at time t–1]
  - Higher value of AQI may indicate excessive expenditure capitalization.
- **SGI (sales growth index)** = Sales t/Sales t–1
  - Higher value of SGI indicates that sales have improved relative to previous year and thus may predispose companies to inflate sales and earnings in future to represent continuing growth and to obtain capital needed to support growth.
- **DEPI (depreciation index) =** Depreciation rate t–1/Depreciation rate t

Where, Depreciation rate = Depreciation/(Depreciation + Property, plant & equipment)

  - Higher value of DEPI indicates lower depreciation rate (understated depreciation) in current year compared to previous year and thus overstated earnings.
- **SGAI (sales, general, and administrative expenses index) =** (SGA t/Sales t) / (SGA t–1/Sales t–1)
  - Higher value of SGAI indicates decreasing administrative and marketing efficiency, which could predispose companies to manipulate earnings.
- **Accruals =** (Income before extraordinary items – Cash from operations)/Total assets
  - Higher accruals may suggest overstated earnings.
- **LEVI (leverage index) =** Leverage t / Leverage t–1

Where, Leverage = Debt / Assets

  - Higher value of LEVI may suggest higher leverage that in turn could predispose companies to overstate earnings.

The probability of earnings manipulation using M-Scores can be calculated by using the cumulative probabilities for a standard normal distribution. For example, M-scores of –1.49 and –1.78 indicate that the probability of earnings manipulation is 6.8% and 3.8%, respectively.

The use of the M-score to classify companies as potential manipulators depends on the relative cost of Type I and Type II errors.

- Type-I Error: Incorrectly classifying a manipulator company as a non-manipulator. An investor is likely to have high type I error costs because of the high loss associated with investing in a firm that is accused of manipulation.
- Type-II Error: Incorrectly classifying a non-manipulator as a manipulator. In contrast, a regulator has a higher type II error cost, since the cost of investigating a non-manipulating firm is high. Hence, a cut-off value of 2.9% (i.e. M-score > -1.78) is used for minimizing the cost of misclassification.

**Practice: Example 5, Reading 18.**

### 3.2.2) Other Quantitative Models

Other variables used for detecting misstatement include:

- Accruals quality;
- Deferred taxes;
- Auditor change;
- Market-to-book value;
- Publicly listed company;
- Growth rate differences between financial and non-financial variables (i.e. number of patents, employees, and products);
- Accrual quality;
- Aspects of corporate governance;
- Incentive compensation;

## 4. Earnings Quality (4.1.1 – 4.1.4)

Indicators of earnings quality include:

1) **Recurring earnings:** When forecasting future earnings, an analyst should use only ***recurring earnings*** of the company as an input for forecasting models. Non-recurring earnings include earnings from subsidiaries that have been selected for disposal, one-off asset sales, one-off litigation settlements, or one-off tax settlements.
2) **Earnings persistence and related measures of accruals:** One of the characteristics of high quality earnings is sustainability of earnings. Persistence can be expressed as the coefficient (i.e. $\beta 1$) on current earnings as expressed below:

**Earnings t+1 = $\alpha$ + ($\beta 1$ × Earnings t) + $\varepsilon$**

- The higher the coefficient ($\beta 1$), the more persistent are the earnings.

Earnings are composed of two things i.e. a cash component and an accruals component. It is expressed in the following equation.

**Earnings t+1 = $\alpha + \beta 1$Cash flow t + $\beta 2$Accruals t + $\varepsilon$**

- The higher the coefficient of Accruals component (i.e. $\beta 2$), the less persistent the earnings and thus, the lower the quality of earnings.

There are two types of Accruals:

i. **Non-discretionary Accruals:** Accruals that result from normal transactions are known as non-discretionary accruals.
ii. **Discretionary Accruals:** Accruals that arise as a result of the management's intention to distort reported earnings are known as discretionary accruals.

- Discretionary accruals can be detected by analyzing companies' non-discretionary accruals and then identifying the outliers. The higher the amount of discretionary accruals, the more low-quality would be the earnings.
- Another way to detect discretionary accruals is to compare the magnitude of total accruals across companies by scaling them, e.g. accruals as a percentage of average assets or as a percentage of average net operating income.
- **Mean Reversion in Earnings:** Mean reversion in earnings is phenomenon under which high earnings are followed by relatively low future profits over time whereas low earnings are followed by relatively high future earnings. For example, high earnings, particularly when there are low barriers to entry, create competition that in turn lead to low prices and decline in existing company's profits over time. Similarly, low earnings of a company may force it to shut down or minimize its loss making operations or to change its strategy, which leads to improvement in earnings.

3) **Beating benchmarks:** Exactly meeting on a consistent basis or only narrowly beating benchmarks may be an indication of low-quality earnings because earnings that meet or exceed benchmarks (e.g. analysts' consensus forecasts) tend to result in increase in share prices.
4) After-the-fact confirmations of poor-quality earnings, such as enforcement actions and restatements.

**Practice: Example 6 & 7 , Reading 18.**

### 4.1.5) External Indicators of Poor-Quality Earnings

Two external indicators of poor-quality earnings are as below:

i. Enforcement actions by regulatory authorities
ii. Restatements of previously issued financial statements
   - **Days sales outstanding (DSO):** Increasing DSO indicates that the company is either unable to collect its payments and/or providing lenient terms to buyers in order to inflate revenues.
   - **Account receivable turnover (365/DSO):** Accounts receivable turnover represents the number of times the receivables are converted into cash each year. High receivables turnover indicates slower or inefficient cash collection.

An analyst should analyze trend in DSOs and receivables turnover over some relevant time period and across peer companies. In addition, the company's percentage of accounts receivable to revenue should be compared with that of competitors or industry measures over relevant time period. If increase in receivables is greater than growth in revenues, it may be a signal that a company is inflating revenues in current periods by offering favorable discounts or generous return policies.

Trends in revenue can be examined by analyzing company's revenue against non-financial data reported by it. For example, increase in an airline company's revenue can be related to an increase in miles flown or capacity.

**Related-party transactions:** An analyst should identify dealings between public company and the manager/shareholder-owned (private) entity that take place at unfavorable prices in order to examine any inappropriate transfer of wealth from public company to the manager-owned entity.

- **Tunneling:** The practice of transferring public company resources, e.g. through excessive compensation, direct loans, or guarantees, to managers and/or shareholders is referred to as tunneling.
- **Propping:** The practice of transferring manager-owned entity's resources to the public company to ensure its economic viability is referred to as Propping.

**Improper Expense Recognition:** Capitalization of expenditures, instead of expensing, results in overstated income as well as inflated amount of assets on balance sheet. In order to detect inappropriate capitalization of expense, an analyst should evaluate company's cost capitalization policies and depreciation policies. These policies should be compared with that of its competitors.

- If a company's non-current assets are growing extraordinarily while its profit margins are improving or staying constant, it may be a signal of improper cost capitalization.
- Steady or rising revenues and decreasing asset turnover might indicate improper cost capitalization.
- Significant increase in percentage of capital expenditures relative to total property, plant, and equipment might indicate aggressive cost capitalization.

## 4.3 Bankruptcy Prediction Models

### 4.3.1) Altman Model

Altman model calculates Altman's Z-score as follows:

$$\text{Z-score} = \left(1.2 \times \frac{Net\ Working\ capital}{Total\ assets}\right) + \left(1.4 \times \frac{Retained\ Earnings}{Total\ assets}\right) + \left(3.3 \times \frac{EBIT}{Total\ assets}\right) + \left(0.6 \times \frac{Market\ value\ of\ Equity}{Book\ value\ of\ liabilities}\right) + \left(1.0 \times \frac{Sales}{Total\ assets}\right)$$

- **Net working capital/total assets:** It is a measure of short-term liquidity risk.
- **Retained earnings/total assets**: It reflects accumulated profitability and relative age.
- **EBIT (earnings before interest and taxes)/total assets**: It measures profitability.
- **Market value of equity/book value of liabilities:** It represents leverage i.e. higher ratio indicates greater solvency.
- **Sales/total assets:** It indicates the company's ability to generate sales given the level of assets.

The higher the Z-score, the lower the credit risk. Z-score of less than 1.81 indicates high probability of bankruptcy whereas z-score of greater than 3 indicates low probability of bankruptcy. Z-scores between 1.81 and 3.00 indicate inconclusiveness.

**Shortcomings in the Altman prediction model:**

1) Altman model is a single-period and static model because it uses only one set of financial measures, taken at a single point in time. Hence, it is preferred to use hazard model which calculates each company's bankruptcy risk at each point in time by using data for all available years.
2) Altman model is based on financial statements that measure past performance and are based on going-concern assumption.

### 4.3.2) Developments in Bankruptcy Prediction Models

- **Market-based bankruptcy prediction models:** Under these models, company's equity is viewed as a call option on the company's assets and probability of default is inferred from the company's equity value, amount of debt, equity returns, and equity volatility.
- **Other measures used to identify companies likely to default** include market value of equity, face value of debt, equity volatility, stock returns relative to market returns over the previous year and ratio of net income to total assets.

## 5. Cash Flow Quality

- Cash flows have ***poor results quality*** when economic performance of the company is poor.
- Cash flows have ***poor reporting quality*** when the reported information misrepresents economic reality.

Cash flows depend corporate life cycle and industry profile of the company. For example, a start-up company tends to have negative operating and investing cash flows but positive financing cash flows due to the funds borrowed or raise from equity issuance to fund operating and investing activities. In contrast, an established company tends to have positive operating cash flows, which may be used to fund necessary investments and returns to providers of capital (i.e., dividends, share repurchases, or debt repayments).

***Typically, for an established company, high-quality cash flow tends to have most or all of the following characteristics:***

- Positive Operating cash flows (OCF)
- OCF generated from sustainable sources
- OCF that are sufficient to meet capital expenditures, dividends, and debt repayments.
- Less volatile OCF compared to industry participants.

When operating cash flows are negative whereas earnings are positive on a consistent basis, it is an indication of earnings manipulation. OCF can be inflated by selling receivables to a third party and/or by delaying paying its payables, which in turn result in decrease in the company's days' sales outstanding and an increase in the company's days of payables.

**Practice: Example 8, Reading 18.**

### 5.2 Evaluating Cash Flow Quality

OCF can also be inflated by classification shifting of positive cash flow items from investing or financing activities to operating activities. Under IFRS, companies are allowed to classify interest paid either as operating or as financing activity and dividends received as operating or as investing activity. In contract, under US GAAP, that interest paid, interest received, and dividends received can be classified as operating cash flows only. Similarly, cash flows from non-trading securities are classified as investing cash flows, whereas cash flows from trading securities are typically classified as operating cash flows.

It is important to understand the reasons behind changes pertaining to restatement of company's prior year's financial statements, recasting of prior year's financial statements, omitting of information that was not previously disclosed etc.

**Practice: Example 9, Reading 18.**

## 6. Balance Sheet Quality

A balance sheet has high **financial reporting quality** when it has the following characteristics:

1) ***Completeness***: A balance sheet lacks completeness when it has significant amounts of off-balance-sheet items e.g.

- Operating leases obligations and purchase contracts - which may be structured as take-or-pay contracts. In this case, an analyst is required to use constructive capitalization. Under ***constructive capitalization***, the amount of the operating lease obligation is estimated as the present value of future lease (or purchase obligation) payments and then it is added to the amount of the obligation to the company's reported assets and liabilities.
- When a company uses unconsolidated joint ventures or equity-method for its investee, parent company's net profit margin may be overstated because the parent company's consolidated financial statements include its share of the investee's profits but not its share of the investee's sales.

2) ***Unbiased measurement***: Unbiased measurement refers to bias free measurement of assets, liabilities and expenses etc. For example, biased measurements include

- Understatement of impairment charges for inventory;

plant, property, and equipment results in overstated profits on the income statement and overstated assets on the balance sheet.
- Understatement of valuation allowance for deferred tax assets results in understated tax expenses and overstated value of the assets on the balance sheet.
- High discount rate results in understated pension liabilities on the balance sheet.

***3) Clear presentation***

A balance sheet has high **financial results quality** when it has the following characteristics:

- Optimal amount of leverage
- Adequate liquidity
- Economically successful asset allocation

**Practice: Example 10, Reading 18.**

## 7. Sources of Information about Risk

- High leverage ratios or low coverage ratios indicates high financial risk.
- Highly volatile operating cash flows or negative trends in profit margins may indicate high operating risk.
- Reporting risk can be identified from an audit opinion(s) about financial statements (and internal controls over financial reporting, where required) and/or from discretionary change in auditor. Similarly, an announcement of the sudden resignation of a company's most senior financial officer may be a warning sign of potential problems with financial reporting quality.
- The use of an auditor whose capabilities seem inadequate for the complexity of the company may indicate risk.
- Changes in the company's risk profile can also be identified from announcements of mergers and acquisitions.

In addition, important risks faced by the company can be identified from management commentary of the company.

### 7.1 Limited Usefulness of Auditor's Opinion as a Source of Information about Risk

- A ***clean audit opinion*** states that the financial statements present the information fairly and in conformity with the relevant accounting principles. It indicates that the company's internal controls are efficient, such that, detailed records are maintained that represent accurate and fair information about the transactions and dispositions of assets of the company, transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company.
- A ***negative or going-concern audit opinion*** is an indication of weak internal controls.

**Limitations:**

- An auditor's opinion does not provide timely information about the reporting risk faced by the company.
- An auditor's opinion pertains to historical information.

### 7.2 Risk-Related Disclosures in the Notes

Under both IFRS and US GAAP, companies are required to provide specific disclosures about risks related to contingent obligations (including a description of the obligation, estimated amounts, timing of required payments, and related uncertainties), pension and post-employment benefits, and financial instrument risks.
In US, public companies are required to report disclosures that are specific to an event, i.e. capital raising, non-timely filing of financial reports, management changes, or mergers and acquisitions to the SEC in a Form 8-K (and NT—"notification of inability to timely file"—when appropriate).

**Practice: Example 11, Reading 18.**

**End of Reading Practice Problems: Practice all the questions given at the end of Reading.**

## 1. INTRODUCTION

The primary reason for performing financial analysis is to facilitate an economic decision. For example, whether to:

- lend to a particular long-term borrower or not.
- invest a large sum in common stocks or not.
- invest in venture capital vehicles or not.
- invest in a private equity candidate or not.

Financial analysis enables the analysts and investors to identify potential losses and potential favorable outcomes.

*Source: Volume 2, Reading 22, Exhibit.*

## 2. CASE STUDY 1: LONG-TERM EQUITY INVESTMENT (Minority EQUITY INTEREST)

Before investing in the company, the investor should consider the following:

- Sources of earnings growth of a company.
- How sustainable the company performance is.
- Whether the company's reported earnings represent economic reality.
- The relationship of earnings to cash flow.
- Whether the company's capital structure is able to support future operations and strategic plans.

**NOTE:**

Issuing dilute equity is considered costly to existing investors.

**Phase 1: Define a Purpose for the Analysis**

For example, an investor is interested in minority equity interest investment in a company. Therefore, his/her objective is to evaluate the factors, which lead to company's financial success and assess their sustainability and risks inherent in these factors.

**Phase 2: Collect Input Data**

Generally, data is collected by gathering several years' annual reports.

**Phase 3: Process Data/ Phase 4: Analyze/Interpret the Processed Data**

**1. A DuPont Analysis:**

DuPont analysis isolates the components affecting the return on common equity. It helps the analysts to find the potential operational flaws that are being masked by effects of stronger operations e.g. a company can offset falling EBIT margin by increasing leverage.

The typical decomposition of ROE is

**ROE =** Tax Burden × Interest Burden × EBIT margin × Total Asset Turnover × Financial Leverage

**ROE =** NI/EBT × EBT/EBIT × EBIT/Sales × Sales/Assets × Assets/Equity

*where,*

| | | |
|---|---|---|
| *NI* | = | *net income* |
| *EBT* | = | *earnings before taxes* |
| *NI/EBT* | = | *tax burden or tax retention rate i.e. (1-tax rate). (Lower value means greater burden)* |
| *EBIT* | = | *earnings before interest and taxes* |
| *EBT/EBIT* | = | *interest burden (lower value means greater burden)* |
| *EBIT/Sales* | = | *operating margin* |
| *Sales/Assets* | = | *asset turnover (efficiency in the use of assets)* |
| *Assets/Equity* | = | *financial leverage (higher value means more debt)* |
| *ROE* | = | *return on equity i.e. NI/Equity* |

OR

**ROE =** Net profit margin × asset turnover × leverage

An analyst must also evaluate sources of income of the company i.e. whether the income is generated internally from operations or externally. The returns earned by affiliates of the company are not under the direct control of the company's management as are operations and resources of the company. Thus, in order to avoid incorrect inferences about the profitability of company's operations, the analyst should remove the effects of the investments in associates from the balance sheet and income statement.

**Adjusted Asset base** = Adjusted Total Assets
= Total Assets of the company – Investments in Associates*

**It is also known as Equity Investment*

**Adjusted Net Income** = Net Income of the company – Net income from Associates*

**it is also known as Equity Income*

$$\textbf{Adjusted Tax Burden} = \frac{\text{Net Income} - \text{Equity income}}{\text{EBT}}$$

*where,*

*EBT= Earnings before taxes*

$$\textbf{Adjusted Total Asset Turnover} = \frac{Revenue}{\frac{Beg\ TA - Beg\ Equity\ Investments + Ending\ TA - Ending\ Equity\ Investments}{2}}$$

where,

TA = Total Assets

**Important:**

- Interest burden, EBIT and operating profit margin are calculated as usual without making any adjustments.
- Financial Leverage ratio is also not adjusted because without knowledge of how investments in associates are financed, it would be arbitrary to remove the investment amount from the asset base and equity base to adjust financial leverage ratio.

**2. Asset Base Composition:**

Analysts must examine the asset base of the company e.g. a food manufacturer and marketer company is expected to have significant investments in assets, inventory and physical plant assets.

If such company has investment in intangible assets as well and its balance sheet shows reduction in short term investments, it indicates company is growing its asset base through acquisitions.

**3. Capital Structure Analysis:**

The simple leverage ratio does not reflect the correct nature of the leverage as it does not report separately bond debt and other debt. It must be noted that financial burden imposed by bond debt is more serious and bears more default risk than liability related to restructuring provisions or pensions.

If a company appears to decrease leverage over time then analyst must consider its offsetting effects on the company's working capital i.e. company's current liability increases and current ratio deteriorates due to the significant increase in the current portion of the financial liabilities.

**4. Segment Analysis/Capital Allocation:**

Identifying geographical areas of greatest importance to the company help analyst to understand any geopolitical investment risk as well as the economies in which the company operates.

Analyst must calculate a ratio of capital expenditures proportion to total assets proportion and compare this ratio to current EBIT margin. This gives the analyst an idea of whether the company is investing its capital in the most profitable segments i.e. segment with the largest EBIT margin should have this ratio > 1.

- A ratio of 1 indicates that the segment's proportion of capital expenditures is the same as its proportion of total assets.
- A ratio < 1 indicates that the segment is being allocated a lesser proportion of capital expenditures than its proportion of total assets. If this trend continues then the segment will become less significant over time.
- A ratio > 1 indicates the company is growing the segment.

If a company continues to allocate capital towards the lowest-margined businesses, the overall company (excluding segments') returns will be affected negatively.

**NOTE:**

A business Segment is a portion of a large company that accounts for more than 10% of the company's revenues or assets and is distinguishable from the company's other lines of business in terms of risk and return characteristics.

**5. Accruals and Earnings Quality:**

Earnings Quality refers to the persistence and sustainability of a company's earnings.

A company's profitability depends on the industry in which it operates e.g. a company operating in the food industry is expected to have consistent profitability because such industry faces non-cyclical demand for its products.

In addition, analyst must also examine balance sheet based and cash flow based accruals of the company to evaluate its earnings quality.

**Balance Sheet based aggregate accruals:**

Aggregate Accruals$_t$ = NOA$_t$ – NOA$_{t-1}$
*where,*

NOA$_t$ = Net operating Assets $_t$ = Operating Assets $_t$ – Operating Liabilities $_t$
= [{Total assets $_t$ – (Cash $_t$ + short term investments $_t$)} – {Total liabilities $_t$ – (Total long-term debt $_t$ + Debt in current liabilities)}]

$$\textbf{Balance sheet based Accruals Ratio} = \frac{(\text{NOA}_t - \text{NOA}_{t-1})}{(\text{NOA}_t + \text{NOA}_{t-1})/2}$$

**Cash Flow based aggregate accruals:**

Aggregate Accruals = NI $_t$ – (CFO $_t$ + CFI $_t$)

$$\textbf{Cash Flow based Accruals Ratio} = \frac{[NI_t - (CFO_t + CFI_t)]}{(NOA_t + NOA_{t-1})/2}$$

**Interpretation of both accruals ratio and aggregate accruals:** The greater the aggregate accruals and the higher the accruals ratio, the lower the earnings quality.

**NOTE:**

Wide fluctuations in accruals and accrual ratio are also an indication of earnings manipulation.

**6. Cash Flow Relationships:**

An analyst must also study the company's cash flow and its relationship to net income.

For this purpose, analyst is required to calculate **ratio of Operating cash flow before interest and taxes to the operating income adjusted for accounting changes (e.g. amortization of goodwill).**

where,

**Operating cash flow before interest and taxes =** Operating cash flow + cash interest paid + cash taxes paid

**NOTE:**

If a firm reports interest expense as a financing activity then no interest adjustment is necessary.

**Operating income adjusted for accounting changes = Profit before interest and taxes + amortization of goodwill**

- A ratio > 1.00 and an increasing trend indicate that earnings are supported by cash flow.

**7. Growth through Acquisitions:**

To evaluate cash generating ability of acquisitions, an analyst must calculate cash return on assets i.e.

$$\textbf{\textit{Cash Return on Assets}} = \frac{\text{Operating cash flow}}{\text{Average total assets}}$$

When cash return on assets is increasing over time, the acquisitions appear to be generating the required cash to justify the acquisitions.

**8. Comparing cash flow to reinvestment, debt and debt-servicing capacity:**

**1) Cash Flow to Reinvestment=**

$$\frac{\text{Operating cash flow}}{\text{capital expenditures}}$$

- The ratio > 1 indicates a company has plenty of resources for its reinvestment program.

**2) Cash Flow to Total Debt=**

$$\frac{\text{Operating cash flow before interest \& } taxes}{\text{Total Debt}}$$

*where,*

*Total Debt = short term financial liabilities + current derivative liabilities + long-term financial liabilities*

- The ratio > 50% indicates that company is not highly leveraged and it can easily arrange additional borrowing if need arises.

**3) Capacity to pay debt (in years)**

$$= \frac{\text{Total Debt}}{\text{Operating cash flow} - \text{Capital Expenditures}}$$

- This ratio represents company's capacity to pay off its debt (in years) while maintaining its current reinvestment policy.

**4) Cash Flow Interest Coverage**

$$= \frac{\text{Operating cash flow before interest \& } taxes}{\text{Interest Paid}}$$

- The ratio > 1 indicates that the company has plenty of financial capacity to add more debt if investment need arises.

**9. Decomposition and Analysis of the Company's Valuation:**

When a company has an ownership interest in an associate i.e. subsidiary or affiliate, then analyst must determine the value of a company (Parent company) on stand-alone basis in order to better evaluate company's valuation.

**a) Parent Company pro-rata share of subsidiary/affiliates** = Subsidiary's market Capitalization × Ownership interest in subsidiary × exchange rate

**b) Implied Value of Parent Company (excluding subsidiary/affiliates)** = Parent Company's market Capitalization - Parent Company pro-rata share of subsidiary/affiliates

**c) P/E ratio of Parent Company** =

$$\frac{\text{Parent Company's market Capitalization}}{\text{Net Income of Parent Company}}$$

**d) Implied P/E ratio of Parent Company** =

$$\frac{\text{Implied Value of Parent Company (excluding subsidiary/affiliates)}}{\text{Net Income of Parent Company} - \text{Equity Income from subsidiary/affiliates}}$$

**e) Discount to Benchmark** =

$$\frac{\text{Benchmark's P/E} - \text{Parent Company P/E}}{\text{Benchmark's P/E}}$$

If a company's shares are selling at discount (i.e. P/E ratio of company is < P/E ratio of Benchmark e.g. S&P 500) despite strong cash flow position, low financial leverage and lower accruals, then it implies that the

company's shares are undervalued relative to the market.

**NOTE:**

If parent company operates in U.S. but its subsidiary is located in Europe, then implied P/E ratio is just a crude measure because of the potential differences in accounting methods used by two companies.

**For Example:**

Suppose

- Company A (U.S. based) owns 35% equity interest in Company B (located in Europe).
- Company A market Capitalization = $150 billion
- Company B market Capitalization = €65 billion
- Year-end exchange rate = $1.50/€
- Net Income of Company A = $ 10 billion
- Equity Income from subsidiary/affiliates = $900 million
- Benchmark is S&P 500.
- P/E of S&P 500 = 20.00

1) Company A pro-rata share of Company B = €65 × 35% × $1.50 = $34.125 billion
2) Implied Value of Company A (excluding Company B) = $150 billion - $34.125 billion = $115.875 billion
3) P/E ratio of Company A = $\frac{\$150}{\$10}$ = 15x
   Discount to S&P 500 = 25%
4) Implied P/E ratio of Company A = $\frac{\$150-\$34.125}{\$10 \text{ billion}-\$900 \text{ million}}$ = 12.734x
   Discount to S&P 500 = 36.33%

**Phase 5: Develop and Communicate Conclusions and Recommendations (e.g. with an Analysis Report)**

With the help of analytical results and previous reports, analyst prepares an analytical report, which provides the answers to the questions posed in Phase 1. Analyst also makes recommendations regarding investment in the company. The analytical report covers two components i.e.

1) Reasons/Support for an Investment in the Company shares.
   Reasons include:
   - Sources of earnings and high earnings growth.
   - Financial stability to fund growth.
   - Adequate current liquidity and cash flows availability.
   - Low leverage.
   - Capital structure capable of supporting future operations and strategic plans.
   - Increasing margins and ROE.
   - Fairly stable relationship between income and operating cash flows.
   - Sufficient cash flow available to support capital expenditures and increase in debt.
   - High cash return on assets.
   - Undervalued Implied P/E ratio.
2) Causes for concern in the Company. For example
   - Increases in balance sheet based and cash flow based accruals and accrual ratios.
   - Over-allocating capital expenditures to the Lowest-margined business segments.

**Phase 6: Follow-Up**

The analyst is required to update his/her findings in the initial research report at each reporting period.

## 3. CASE STUDY 2: OFF-BALANCE SHEET LEVERAGE FROM OPERATING LEASES

**Phase 1: Define a Purpose for the Analysis**

If an investor wants to invest in companies with little operating leverage or inventory risk, then objective of analysis will be to discover any hidden leverage in the companies i.e. operating leases. If such leverage exists, then analyst must also analyze the impact of the leverage on company's performance.

**Phase 2: Collect Input Data**

With the help of financial statements, analyst must calculate the ratio of the estimated incremental (hidden) assets and liabilities to total assets and this ratio is compared to 5 percent.

If this ratio > 5% for any company which is being analyzed, it indicates that there may be significant assets and liabilities in the company which need to be capitalized on the balance sheet to reflect true economic reality.

**Phase 3: Process Data/ Phase 4: Analyze/Interpret the Processed Data**

For analytical purposes, Operating leases (if present) are capitalized and their impact on the financial leverage and interest coverage ratio is analyzed by an analyst i.e.

- Assets and liabilities are increased by the PV of the remaining operating lease payments.
- Income statement is adjusted by replacing rent expense with depreciation expense on the leased asset and interest expense on the lease liability.

**Adjusted Financial Leverage** =

$$\frac{\text{Total Assets} + \text{PV of lease payments}}{\text{Total Equity}}$$

**Adjusted Debt-to-Equity ratio** =

$$\frac{\text{Total Debt} + \text{PV of lease payments}}{\text{Total Equity}}$$

**Adjusted Interest Coverage Ratio** = $\frac{\text{EBIT} - \text{Depreciation expense} + \text{Rent Expense}}{\text{Interest Expense} + \text{Assumed Interest expense on leases}}$

*Assumed interest expense on leases is calculated as the present value of the lease obligations multiplied by implied interest rate.*

Capitalizing operating lease results in increase in financial leverage, and decrease in Interest coverage ratio.

**Phase 5: Develop and Communicate Conclusions and Recommendations (e.g. with an Analysis Report)**

When operating leases are capitalized, the financial strength of the company does not usually appear as attractive. Therefore, on the basis of this result, analyst recommends either not to invest in such company or to reduce the existing holdings in such company.

**Phase 6: Follow-Up**

The analyst is required to update his/her findings in the initial research report at each reporting period.

## 4. CASE STUDY 3: ANTICIPATING EFFECTS OF CHANGES IN ACCOUNTING STANDARDS

**Phase 1: Define a Purpose for the Analysis**

The financial analyst's objective is to identify financial institutions with securitizations and how they are affected by new accounting treatment which requires companies to reconsolidate securitized assets onto their balance sheets along with associated liabilities.

**Phase 2: Collect Input Data**

Data that is required for analysis can be obtained from annual reports, MD&A and notes to financial statements.

**Phase 3: Process Data/ Phase 4: Analyze/Interpret the Processed Data**

The financial data which is collected in phase 2 is processed and analyzed i.e. securitization is treated as a secured borrowing, with the assets reported on the balance sheet and also including liabilities associated with securitization on the balance sheet. The effects of consolidation of securitized assets and liabilities on company's leverage are analyzed i.e. increase in financial leverage. And if a company raises additional equity to avoid increase in leverage, this would lead to dilution of existing investors' ownership interests.

**Phase 5: Develop and Communicate Conclusions and Recommendations (e.g. with an Analysis Report)**

Based on the results of reconsolidation of securitized assets and liabilities (i.e. company appears highly leveraged), analyst recommends either not to invest in such company or to reduce the existing holdings in such company.

**Phase 6: Follow-Up**

The analyst is required to update his/her findings in the initial research report at each reporting period and to continuously monitor the impacts of accounting changes on financial statements and on company valuation.

**Practice: End of Chapter Practice Problems for Reading 19 & FinQuiz Item-set ID# 11717.**