Analyzing Investing and Operating Activities

3

Lecture

Lecture 3: Agenda

Analyzing Investing & Operating activities

Investing activities

Introduction to Current Assets

Analyzing Inventories

Analyzing Plant assets and Intangible Assets

Operating activities

Income measurement:
- Concepts
- Measurement
- Alternative analysis

Nonrecurring Items

Earnings per Share

Asset Introduction

Classification

Current (short-term) Assets

Resources or claims to resources that are expected to be sold, collected, or used within one year or the operating cycle, whichever is longer.

Noncurrent (Long-Term) Assets

Resources or claims to resources that are expected to yield benefits that extend beyond one year or the operating cycle, whichever is longer.

Asset Introduction

Classification

Financial Assets

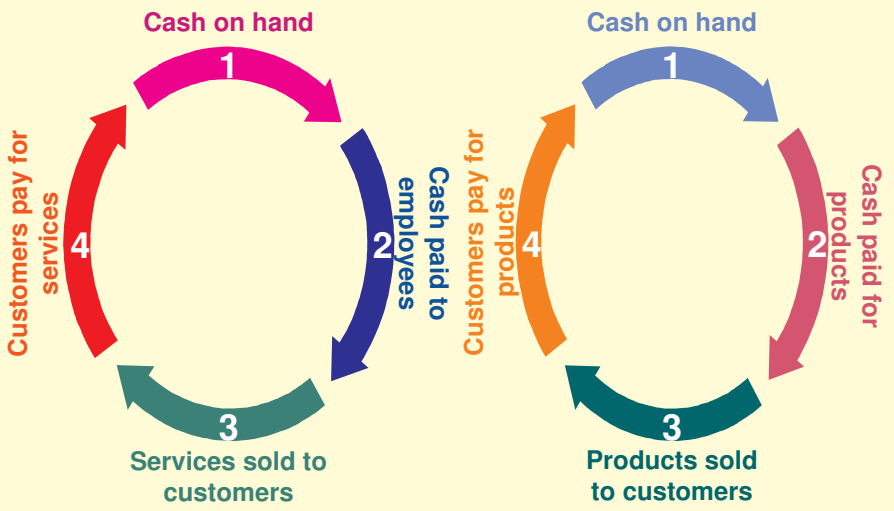
Consist mainly of marketable securities and investments. Usually valued at fair (market) value, expected to yield returns equal to their risk-adjusted cost of capital

Operating Assets

Constitute most of a company's assets. Usually valued at cost and are productive operating assets expected to yield above normal profits

Current Asset Introduction

Operating Cycle



Current Asset Introduction

Cash, Cash Equivalents and Liquidity

Cash

Currency, coins and amounts on deposit in bank accounts, checking accounts, and some savings accounts.

Cash Equivalents

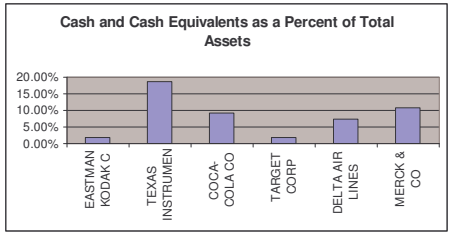
Short-term, highly liquid investments that are:

1. Readily convertible to a known cash amount.
2. Close to maturity date and not sensitive to interest rate changes.

Current Asset Introduction

Analysis of Cash and Cash Equivalents

- Does not present serious valuation problems because of its liquidity (the amount of cash or cash equivalents the company has on hand and the amount of cash it can raise in a short period of time)
- Examine for restrictions on disposition
  - — remove restricted balances from current assets since they are not available for paying current obligations
  - — in assessing liquidity, consider repercussions of violating these agreements
  - — exposure often measured by the ratio of restricted balances to the total



Current Asset Introduction

Receivables

Receivables are amounts that arise from the sale of goods or services, or the loaning of money

Accounts receivable refer to oral promises of indebtedness due from customers

Notes receivable refer to formal written promises of indebtedness due from others

Current Asset Introduction

Valuation of Receivables

Receivables are reported at their *net realizable value* —total amount of receivables less an allowance for uncollectible accounts

Management estimates the allowance for uncollectibles based on experience, customer fortunes, economy and industry expectations, and collection policies

Current Asset Introduction

Analyzing Receivables

Assessment of earnings quality is often affected by an analysis of receivables and their collectibility

Analysis must be alert to changes in the allowance—computed relative to sales, receivables, or industry and market conditions.

Two special analysis questions:

(1) Collection Risk

Review allowance for uncollectibles in light of industry conditions

Apply special tools for analyzing collectibility:

- Determining competitors' receivables as a percent of sales—vis-à-vis the company under analysis
- Examining customer concentration—risk increases when receivables are concentrated in one or a few customers
- Investigating the age pattern of receivables—overdue and for how long
- Determining portion of receivables that is a renewal of prior receivables
- Analyzing adequacy of allowances for discounts, returns, and other credits

(2) Authenticity of Receivables

Review credit policy for changes

Review return policies for changes

Review any contingencies on receivables

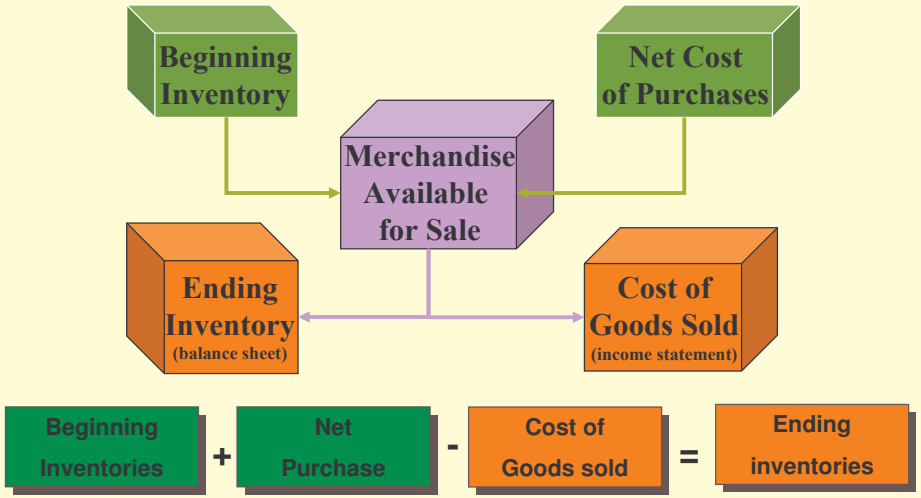
Inventories

Definitions

Inventories are goods held for sale, or goods acquired (or in process of being readied) for sale, as part of a company's normal operations

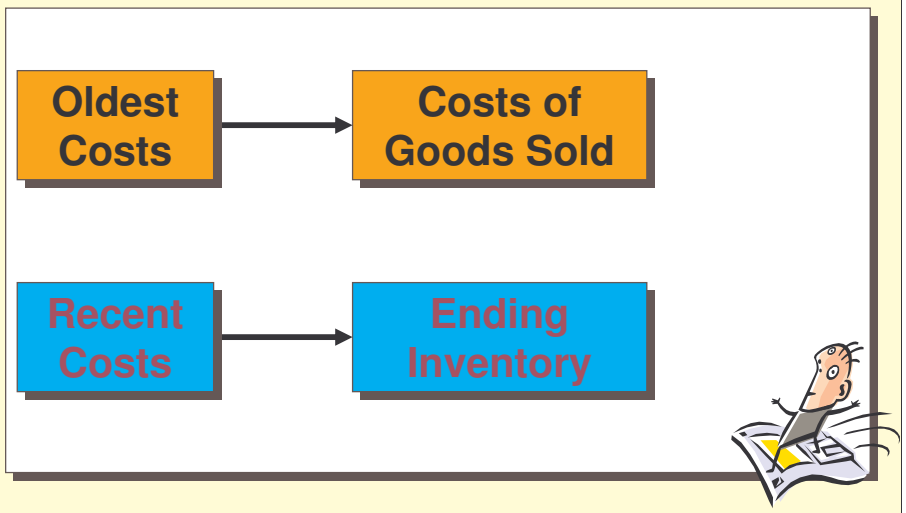
Inventories

Inventory Cost Flows



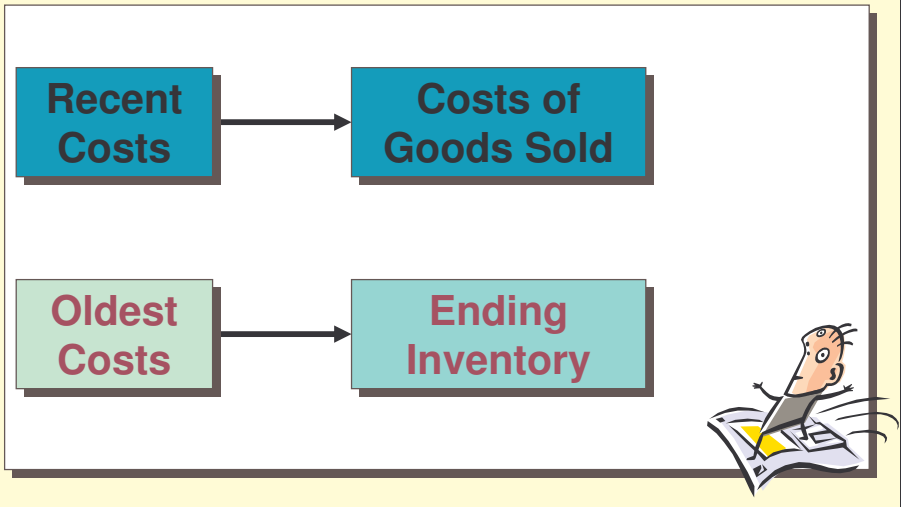
Inventories

First-In, First-Out (FIFO)



Inventories

Last-In, First-Out (LIFO)



Inventories

Average Cost

When a unit is sold, the **weighted average cost of each unit** in inventory is assigned to cost of goods sold.

Cost of Goods Available for Sale ÷ **Units available on the date of sale**

Inventories

Illustration of Costing Methods

Inventory on January 1, Year 2	40 @ $500	$ 20,000
Inventories purchased during the year	60 @ $600	36,000
Cost of Goods available for sale	100 units	$ 56,000

Note: 30 units are sold in Year 2 for $800 each = Total Revenue-$24,000

Inventories

Illustration of Costing Methods

	Beginning Inventory	+	Net Purchases	=	Cost of Goods Sold	+	Ending Inventory
FIFO	$20,000	+	$36,000	=	$15,000	+	$41,000
LIFO	$20,000	+	$36,000	=	$18,000	+	$38,000
Average	$20,000	+	$36,000	=	$16,800	+	$39,200

Assume sales of $35,000 for the period—then gross profit under each method is:

	Sales	–	Cost of Goods Sold	=	Gross Profit
FIFO	$24,000	--	15,000	=	$9,000
LIFO	$24,000	--	18,000	=	$6,000
Average	$24,000	--	16,800	=	$7,200

Long-Lived Asset Introduction

Definitions

Long-lived assets—resources or claims to resources are used to generate revenues (or reduce costs) in the long run

Tangible fixed assets such as property, plant, and equipment

Intangible assets such as patents, trademarks, copyrights, and goodwill

Deferred charges such as research and development (R&D) expenditures, and *natural resources*

Long-Lived Asset Introduction

Capitalization

Capitalization—process of deferring a cost that is incurred in the current period and whose benefits are expected to extend to one or more future periods

For a cost to be capitalized, it must meet each of the following criteria:

- It must arise from a past transaction or event (i.e. Goodwill)
- It must yield identifiable and reasonably probable future benefits (i.e. R&D)
- It must allow owner (restrictive) control over future benefits

Long-Lived Asset Introduction

Allocation

Allocation—process of periodically expensing a deferred cost (asset) to one or more future expected benefit periods; determined by benefit period, salvage value, and allocation method

Terminology

- ***Depreciation*** for tangible fixed assets
- ***Amortization*** for intangible assets
- ***Depletion*** for natural resources

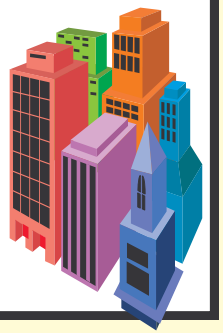
Long-Lived Asset Introduction

Impairment

Impairment—process of writing down asset value when its value-in-use falls below its carrying (book) value

Two distortions arise from impairment:

- Conservative biases distort long-lived asset valuation because assets are written down but not written up
- Earnings management opportunities increase in a trade-off for more useful balance sheets



Long-Lived Asset Introduction

Capitalizing Vs. Expensing: FS and ratio effects

Effects of capitalization on Income

- postpones recognition of costs (higher income in the acquisition period)
- yields an accrual income that is more stable and meaningful measure of company's performance

Effects of capitalization on ROI

- decreases volatility in income measure and, similarly, ROI
- affects both the numerator (income) and denominator (investment bases)

Effects of expensing on Solvency Ratios

- immediate expensing of costs understates equity of companies with productive assets

Effects of Expensing vs. Capitalizing on Operating Cash Flows

- when costs are immediately expensed, they are reported as operating cash outflows
- when assets costs are capitalized they are reported as investing cash outflows
- immediate expensing of assets both overstates operating cash outflows and understates investing cash outflows

Plant Assets

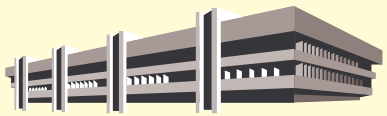
Plant Assets Costing Rule

Purchase price

All expenditures needed to prepare the asset for its intended use

Acquisition cost

Acquisition cost excludes financing charges and cash discounts.



Plant Assets

Depreciation

Depreciation is the process of allocating the cost of a plant asset over its useful life to expense in the accounting periods benefiting from its use.

Balance Sheet		Income Statement
Acquisition Cost	Cost Allocation →	Expense
(Unused)		(Used)

Plant Assets

Factors in Computing Depreciation

The calculation of depreciation requires three amounts for each asset:

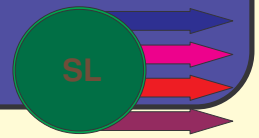
1. **Cost.**
2. **Salvage Value.**
3. **Useful Life.**
4. **Depreciation Method**

Plant Assets

Comparing Depreciation Methods

Straight-Line Method

$$\text{Depreciation Expense per Year} = \frac{\text{Cost} - \text{Salvage Value}}{\text{Useful life in periods}}$$



Plant Assets

Straight-Line Depreciation Illustration

Facts: Asset cost=$110,000; Useful life=10 years; Salvage value=$10,000

End of Year	Depreciation	Accumulated Depreciation	Book Value
			$110,000
1	$ 10,000	$ 10,000	100,000
2	10,000	20,000	90,000
:			
:			
9	10,000	90,000	20,000
10	10,000	100,000	10,000

Plant Assets

Accelerated (Double-Declining-Balance) Method

Step 1:

$$\text{Straight-line depreciation rate} = \frac{100\ \%}{\text{Useful life}}$$

Step 2:

$$\text{Double-declining-balance rate} = 2 \times \text{Straight-line depreciation rate}$$

Step 3:

$$\text{Depreciation expense} = \text{Double-declining-balance rate} \times \text{Beginning period book value}$$

Ignores salvage value

Plant Assets

Double-Declining-Balance Depreciation Illustration

Year	Depreciation	Cumulative Amount
1	$22,000	$22,000
2	17,600	39,600
3	14,080	53,680
4	11,264	64,944
5	9,011	73,955
6	7,209	81,164
7	5,767	86,931
8	4,614	91,545
9*	4,228	95,773
10*	4,228	100,000

*reverts to straight-line (when depreciation expense using the decline-balance methods falls below the straight-line rate it is common practice to use the straight-line rate for the remaining periods

Plant Assets

Analyzing Depreciation

- Assess reasonableness of depreciable base, useful life, and allocation method
- Review any revisions of useful lives
- Evaluate adequacy of depreciation—ratio of depreciation to total assets or to another size-related factors
- Analyze plant asset age—measures include

Average total life span = Gross plant and equipment assets / Current year depreciation expense.

Average age = Accumulated depreciation / Current year depreciation expense.

Average remaining life = Net plant and equipment assets / Current year depreciation expense.

Average total life span = *Average age + Average remaining life*

(these measures also reflect on profit margins and financing requirements)

Intangible Assets

Accounting for Intangible Assets

Record at cost, including purchase price, legal fees, and filing fees.

- Patents
- Copyrights
- Leaseholds
- Leasehold Improvements
- Goodwill
- Trademarks and Trade Names

Intangible Assets

Accounting for Intangible Assets

- Amortize identifiable intangibles over shorter of economic life or legal life, subject to a maximum of 40 years.
- Use straight-line method.
- Research and development costs are normally expensed as incurred.
- Goodwill is not amortized, but is tested annually for impairment

Intangible Assets

Goodwill

Goodwill is the value assigned to a rate of earnings above the norm-it translates into excess earnings called *superearnings*

is not amortized, but tested annually for impairment

Occurs when one company buys another company.

Only purchased goodwill is an intangible asset.

The amount by which the purchase price exceeds the fair market value of net assets acquired.

Analyzing Operating Activities

Income Measurement

Concepts

Income*:

- Summarize in financial terms the operating activities of a business
- provides a measure of the **change in shareholders' wealth for a period** and an estimate of a company's future earning power.
- ACCOUNTING differs from ECONOMIC income
- Both differ from the cash flow measures

*Also called earnings or profit

Income Measurement

Concepts

Illustration Facts:

- Company with $100,000 in cash
- Buys building for $100,000
- Rents building for $12,000 per year
- End of the first year: building valued at $125,000

Income Measurement

Concepts

Illustration Facts:

- Free cash flow = $(88,000)
- Operating cash flow = $12,000
- Economic income = $37,000
- ($12,000 rental income + $25,000 holding gain)
- Accounting income = $11,500 ($12,000 rental income - $500 depreciation*)

*Building's useful life is 50 years and its salvage value is $75,000—yearly straight-line depreciation is $500

Income Measurement

Concepts

Economic Income:

Two measures reflect the economic concept

- economic income
- permanent income

Income Measurement

Concepts

Economic Income:

- Equals net cash flows + the change in the fair value of net assets
- Measures change in shareholder value—reflecting the financial effects of all events in a comprehensive manner
- Includes both recurring and nonrecurring components—rendering it less useful for forecasting potential future earnings
- income includes both realized (cash flow) and unrealized (holding gain or loss) components

Income Measurement

Concepts

Permanent Income*

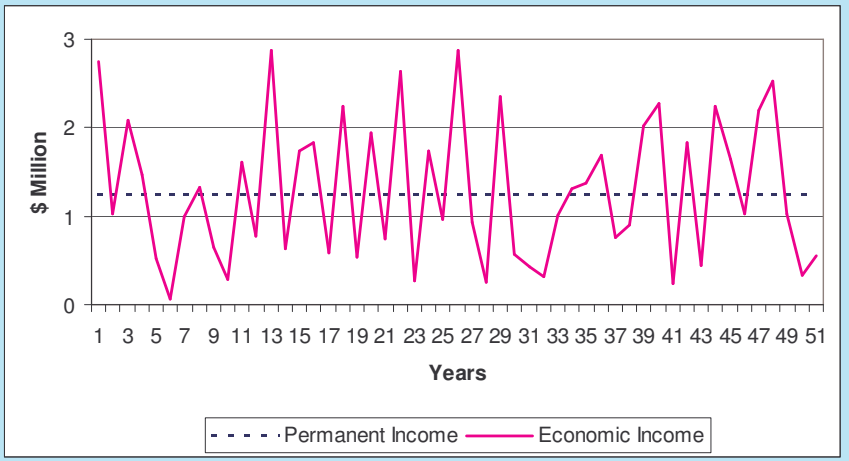
- Equals stable average income that a company is expected to earn over its life
- Reflects a long-term focus
- Directly proportional to company value

*Also called sustainable earning power, or normalized OR sustainable earnings

Income Measurement

Concepts

Economic Income and Permanent Income



Income Measurement

Concepts

Accounting Concept of Income:

- Based on **accrual** accounting
- Capture aspects of **both economic** income and **permanent** income
- Is a **product of the financial reporting environment**—accounting standards, enforcement mechanisms, managers' incentives, etc.
- Suffers from **measurement problems**—yields accounting analysis
- A major task in FSA is **adjusting accounting income** to better reflect alternative income concept

Income Measurement

Concepts

Accounting Income consists of:

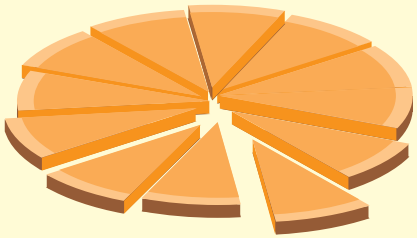
- **Permanent Component**--the recurring component expected to persist indefinitely
- **Transitory Component**--the transitory (or non-recurring) component not expected to persist (Note: The concept of economic income includes both permanent and transitory components.)
- **Value Irrelevant Component**--value irrelevant components have no economic content; they are accounting distortions

Income Measurement

Measurement

Two main components of accounting income:

Revenues (gains)
Expenses (losses)



Income Measurement

Measurement

Revenues and Gains

- **Revenues** are earned inflows or prospective inflows of cash from operations*
- **Gains** are recognized inflows or prospective inflows of cash from non-operations**

* Revenues are expected to recur
**Gains are non-recurring

Income Measurement

Measurement

Expenses and Losses

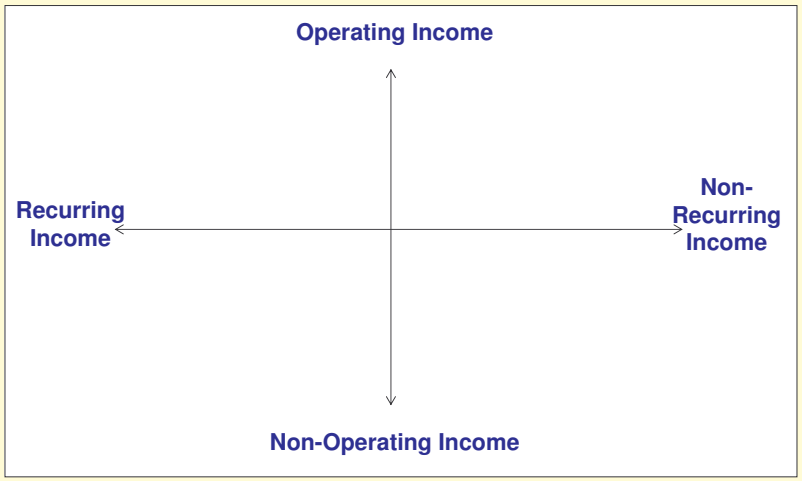
- **Expenses** are incurred outflows, prospective outflows, or allocations of past outflows of cash from operations
- **Losses** are decreases in a company's net assets arising from non-operations

Expenses and losses are resource consumed, spent, or lost in pursuing revenues and gains

Income Measurement

Alternatives

Operating vs. Non-Operating and Recurring vs. Non-Recurring



Income Measurement

Analysis

Operating versus Non-Operating Income

Operating income--measure of company income as generated from operating activities

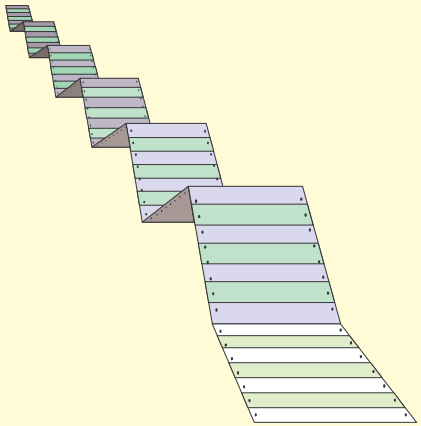
Three important aspects of operating income
- Pertains only to income generated from operations
- Focuses on income for the company, not simply for equity holders (means financing revenues and expenses are excluded)
- Pertains only to ongoing business activities (i.e., results from discontinued operations is excluded)

Non-operating income--includes all components of net income excluded from operating income

Useful to separate non-operating components pertaining to financing and investing

Non-Recurring Items

1. Extraordinary items
2. Discontinued operations
3. Accounting changes
4. Special items
   a. Asset impairments (write-offs)
   b. Restructuring charges



Non-Recurring Items

Extraordinary Items

Criteria
- Unusual in nature
- Infrequent in occurrence

Examples
Uninsured losses from a major casualty (earthquake,hurricane, tornado), losses from expropriation, and gains and losses from early retirement of debt (most common)

Disclosure
Classified separately in income statement (as separate line items)

Non-Recurring Items

Extraordinary Items

Analyzing Extraordinary items:

- Are non-recurring in nature
- Excluded when computing permanent income
- Included when computing economic income
- Can reveal risk exposures
- Can impact computation of sustainable earning power
- Often Excluded when making comparisons over time or across firms

Non-Recurring Items

Discontinued Operations

Concept and accounting
- Are related to the dispose of entire divisions or product lines.
- Assets and business activities of the divested segment must be clearly distinguishable from those of the remaining entity
- Income statements for the current and prior two years are restated after excluding the effects of discontinued operations
- Gains or losses from the discontinued operations are reported separately, net of tax

Non-Recurring Items

Accounting Changes

Accounting changes are of 3 types:

1. Accounting principle change
2. Accounting estimate change
3. Reporting entity change

Non-Recurring Items

Special Items

Special Items--transactions and events that are **unusual** or **infrequent** (**not both**)

These items are typically **reported** as separate line items on the income statement **before continuing income**

Two major types

- Asset impairments (write-offs)
- Restructuring charges

Non-Recurring Items

Special Items

Asset Impairment—when asset fair value is below carrying (book) value

Some reasons for impairments
- Decline in demand for asset output
- Technological obsolescence
- Changes in company strategy

Accounting for impairments
- Report at the lower of market or cost
- No disclosure about determination of amount
- No disclosure about probable impairments
- Flexibility in determining when and how much to write-off
- No plan required for asset disposal
- Conservative presentation of assets

Non-Recurring Items

Special Items

Restructuring Charges—costs usually **related to major changes in company business**

Examples of these major changes include
- Extensive reorganization
- Divesting business units
- Terminating contracts and joint ventures
- Discontinuing product lines
- Worker retrenchment
- Management turnover
- Write-offs combined with investments in assets, technology or manpower

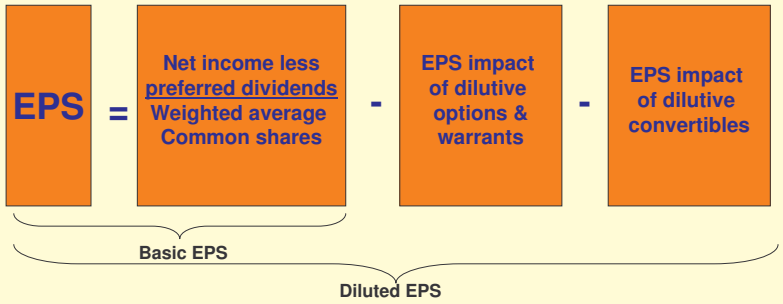
Accounting for estimated costs of restructuring program
- Establish a provision (liability) for estimated costs
- Charge estimated costs to current income
- Actual costs involve adjustments against the provision when incurred

Earnings Per Share - EPS

- **Simple Capital Structure**

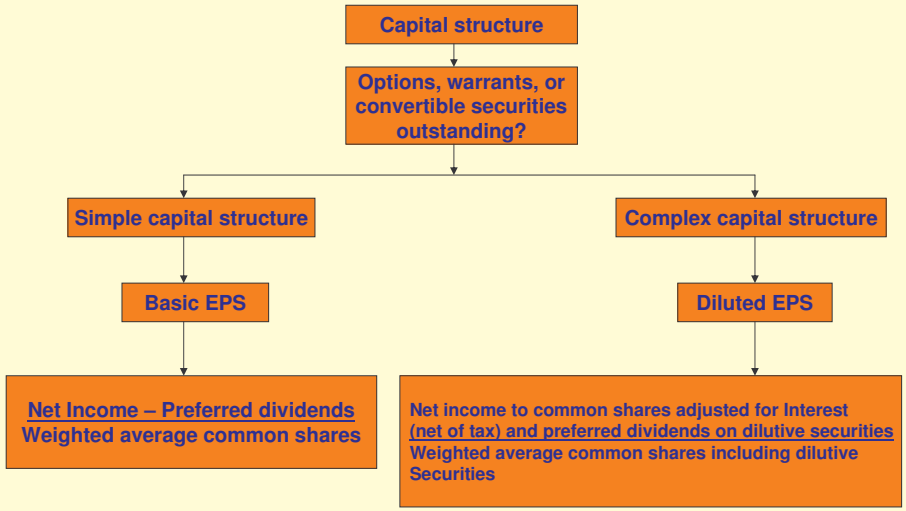
$$\text{Basic EPS} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted-average \# of common shares outstanding}^*}$$

- **Complex Capital Structure**



Earnings Per Share - EPS

Computations



Earnings Per Share - EPS

Computations

To illustrate the computation of EPS, consider a company with the following securities outstanding:

-Common Stock:	1,000,000 shares outstanding for the entire year.
-Preferred stock:	500,000 shares outstanding for the entire year.
-Convertible bonds:	$5,000,000 6% bonds, sold at par, convertible into 200,000 shares of common stock
-Employee stock options:	options to purchase 100,000 shares at $30 have been outstading for the entire year. The average market price of the company's common stock during the year is $40.
-Net Income:	$3,000,000
-Preferred dividends:	$50,000
-Marginal tax rate:	35%

$$\text{Basic EPS} = \frac{\$3{,}000{,}000 - \$50{,}000}{1{,}000{,}000} = \$2.95$$

$$\text{Diluted EPS} = \frac{\$3{,}000{,}000 - \$50{,}000 + [(\$5{,}000{,}000 \times 6\%)(1-.35)]}{1{,}000{,}000 + 200{,}000 + 25{,}000} = \$2.57$$