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CFA一级培训项目

Financial Reporting and Analysis

汤震宇
CFA FRM CTP CAIA CMA RFP
金程教育首席培训师
地点： ■ 上海 □北京 □深圳

汤震宇

- 工作职称：博士，金程教育首席培训师、上海交通大学继续教育学院客座教授、综合开发研究院（中国·深圳）培训中心副教授，对外经济贸易大学金融学院兼职教授、南京大学中国机构投资者研究中心专家、上海财经大学公共经济与管理学院投资学校外实践教育基地校外导师、 CFA（注册金融分析师）、FRM（金融风险管理师）、CTP（国际财资管理师）、CAIA（另类投资分析师）、CMA（美国管理会计师）、RFP（注册财务策划师）、CISI会员（英国特许证券与投资协会会员）
- 教育背景：中国人民大学投资系学士，复旦大学国际金融系硕士毕业，复旦大学管理学院博士
- 工作背景：“中国CFA第一人”，国内授课时间最长、人气最高、口碑最好的CFA金牌教师。十余年CFA授课经验，为金程教育讲授CFA一级达二百多个班次、CFA二级六十多班次，CFA三级十个班次，深受学员的欢迎和赞誉。行业经验丰富，先后供职于大型企业财务公司从事投资项目评估工作，参与成立证券营业部并任部门经理；任职于某民营公司，参与海外融资和资金管理工作。
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- 新浪微博：汤震宇CFA_金程教育
- 联系方式： 电话：021－33926711 邮箱：training@gfedu.net

Topic Weightings in CFA Level I

Study Session 1	Ethics & Professional Standards	15
Study Session 2-3	Quantitative Analysis	12
Study Session 4-6	Economics	10
Study Session 7-10	Financial Reporting and Analysis	20
Study Session 11	Corporate Finance	7
Study Session 12	Portfolio Management and Wealth Planning	7
Study Session 13-14	Equity Investment	10
Study Session 15-16	Fixed Income	10
Study Session 17	Derivatives	5
Study Session 18	Alternative Investments	4
	Total:	100

F.R.A

➢ **SS7**

- R22: Financial Statement Analysis: An Introduction
- R23: Financial Reporting Mechanics
- R24: Financial Reporting Standards

➢ **SS8**

- R25: Understanding the I/S
- R26:Understanding the B/S
- R27: Understanding the C/F
- R28: Financial Analysis Techniques

➢ **SS9**

- ➢ R29: Inventories
- ➢ R30: Long-Lived Assets
- ➢ R31: Income Taxes
- ➢ R32: Long-Term Liabilities and Leases

➢ SS10

- ➢ R33: Financial Reporting Quality: Red Flags and Accounting Warning Signs
- ➢ R34: Accounting Shenanigans on the Cash Flow Statement
- ➢ R35: Financial Statement Analysis: Applications

The Framework of FRS

Generally Accepted Accounting Principle

Two systems worldwide

- **The** Financial Accounting Standards Board (FASB)
  - The Statement of Financial Accounting Standards (SFAS) → U.S. GAAP
- **The** International Accounting Standards Board (IASB)
  - The International Accounting Standards (IAS)
  - The International Financial Reporting Standards (IFRS)

} → **IFRS**

Recognition → Measurement → Disclosure

↓

Financial analysis

Financial statements

Financial position	Financial performance	Change in financial position
The balance sheet	The income statement	The cash flow statement
Assets = liabilities + owner's equity	•Revenue •Expenses ⇩ Net income	•Operating cash flows •Investing cash flows •Financing cash flows ⇩ Net cash inflow or outflow for the financial year

The statement of changes in owner's equity

Financial statements

- **Measurement of financial elements:**
  - historical cost
    - ✓the amount originally paid for the asset,
  - amortized cost
    - ✓historical cost adjusted for depreciation, amortization, depletion, and impairment
  - current cost
    - ✓the amount the firm would have to pay today for the same asset
  - realizable value
    - ✓the amount for which the firm could sell the asset
  - present value
    - ✓the discounted value of the asset's expected future cash flows
  - fair value
    - ✓the amount at which two parties in an arm's-length transaction would exchange the asset

Other relevant information

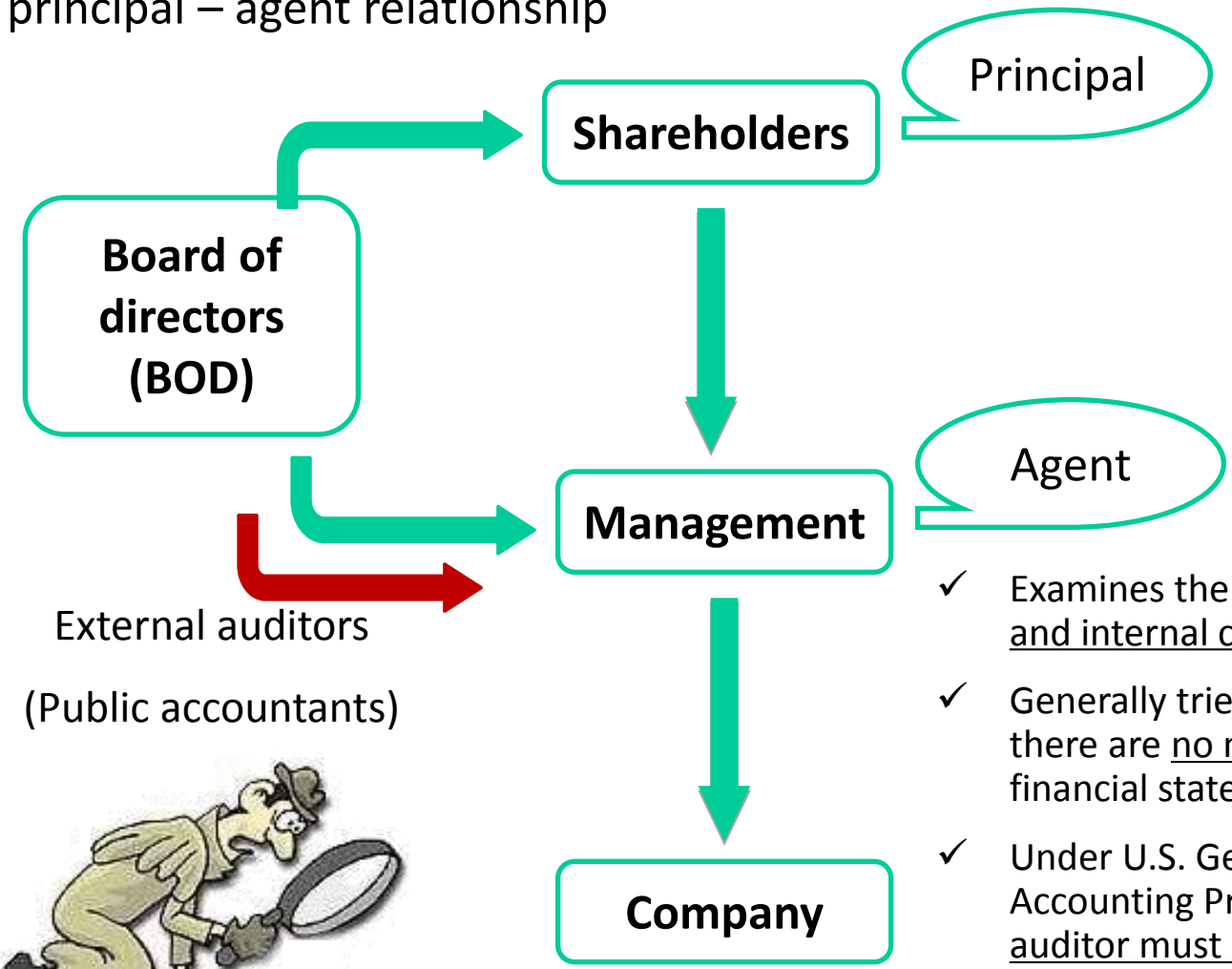
Financial statement notes (Footnotes) ★	•Providing information about accounting methods, assumptions, and estimates •Providing additional information about business acquisitions or disposal, legal actions, employee benefit plans, significant customers, sales to related parties, and segments of the firm •Are audited
Supplementary schedules	•Operating income or sales by region or business segment •Reserves for an oil and gas company •Information about hedging activities and financial instruments
Management's Discussion and Analysis (MD&A) ★	Providing an assessment of the financial performance and condition of a company from the perspective of its management •Results from operations, with a discussion of trends in sales and expense •Capital resource and liquidity, with a discussion of trends in cash flow •A general business overview based on known trends •Material events and uncertainties that may affect the future

Other relevant information

Quarterly or semiannual reports	•The most updated information on the major financial statements and footnotes
Securities and Exchange Commission (SEC) filings	•Form 8-K •**Acquisitions or disposals of major assets** •**Changes in its management** •**Changes in corporate governance** •Form 10-K •**Annual financial statements** •Form 10-Q •**Quarterly financial statements**
Proxy statements	•Issued to shareholders when there are matters that require a shareholder vote •Providing information about the board members, managements, compensation and the issuance of stock options.
Corporate reports and press releases	•Public relations
Other necessary information	•Information on economic conditions, industry and competitors.

Auditing

- A principal – agent relationship



- ✓ Examines the company's accounting and internal control systems,
- ✓ Generally tries to determine that there are no material errors in the financial statements
- ✓ Under U.S. Generally Accepted Accounting Principles(GAAP), the auditor must state its opinion on the company's internal control

Auditing

- **The standard auditor's opinion**
  - Unqualified (clean) opinion: free from material errors, fraud, or illegal acts
  - Qualified opinion: if statements make any exceptions to the accounting principles, can issue qualified opinion and explain the exceptions
  - Adverse opinion: if not presented fairly or not materially conforming with accounting standards.
  - Disclaimer of opinion: If the auditor is unable to express an opinion (e.g., in the case of a scope limitation), a *disclaimer of opinion* is issued.
- **Internal control system**
  - the processes by which the company ensures that it presents accurate financial statements.
  - Internal controls are the responsibility of management.
  - Under U.S. Generally Accepted Accounting Principles (GAAP), the auditor must express an opinion on the firm's internal controls.
    - ✓ The auditor can provide this opinion separately or as the fourth element of the standard opinion.

Financial statement analysis framework

Phase	Sources of info	Output
1. Articulate the purpose and context of the analysis	•Nature •Needs & concern •Guidelines	•Statement of purposes and objectives •A list of specific questions •Timetable & budgeted resources
2.Collect data	•Financial data •Discussion •Visits	•Organized F/S •Financial data table •Complete questionnaires
3.Process data	•Data from previous phase	•Adjusted F/S •Common – size statements •Ratios & Forecasts
4.Analyze/interpret the processed data	•Input data •Processed data	•Analytical results
5.Conclusions & recommendations	•Analytical results	•Analytical reports •recommendation
6.Follow up	•Periodically repeating	•Updated reports & recommendations

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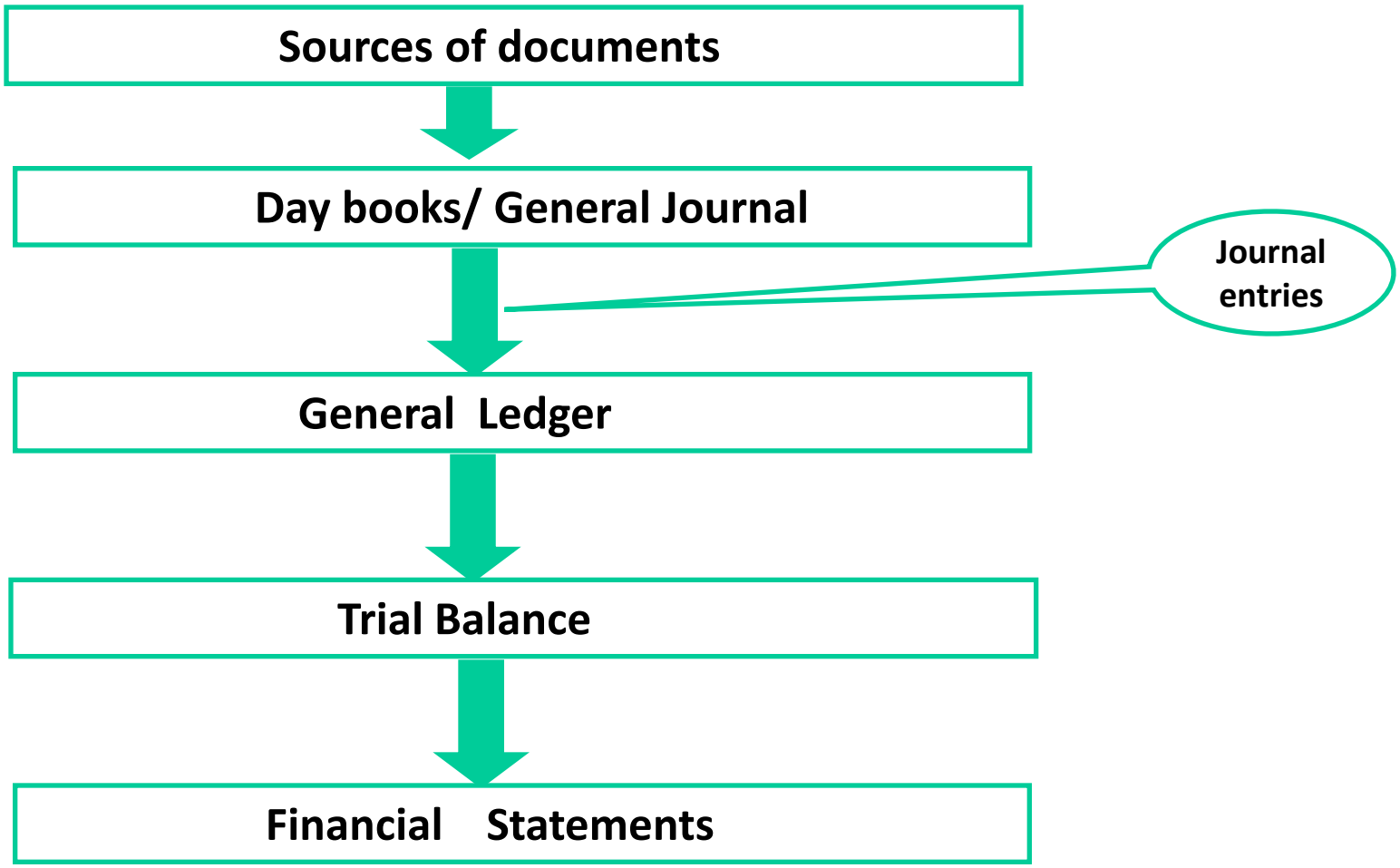
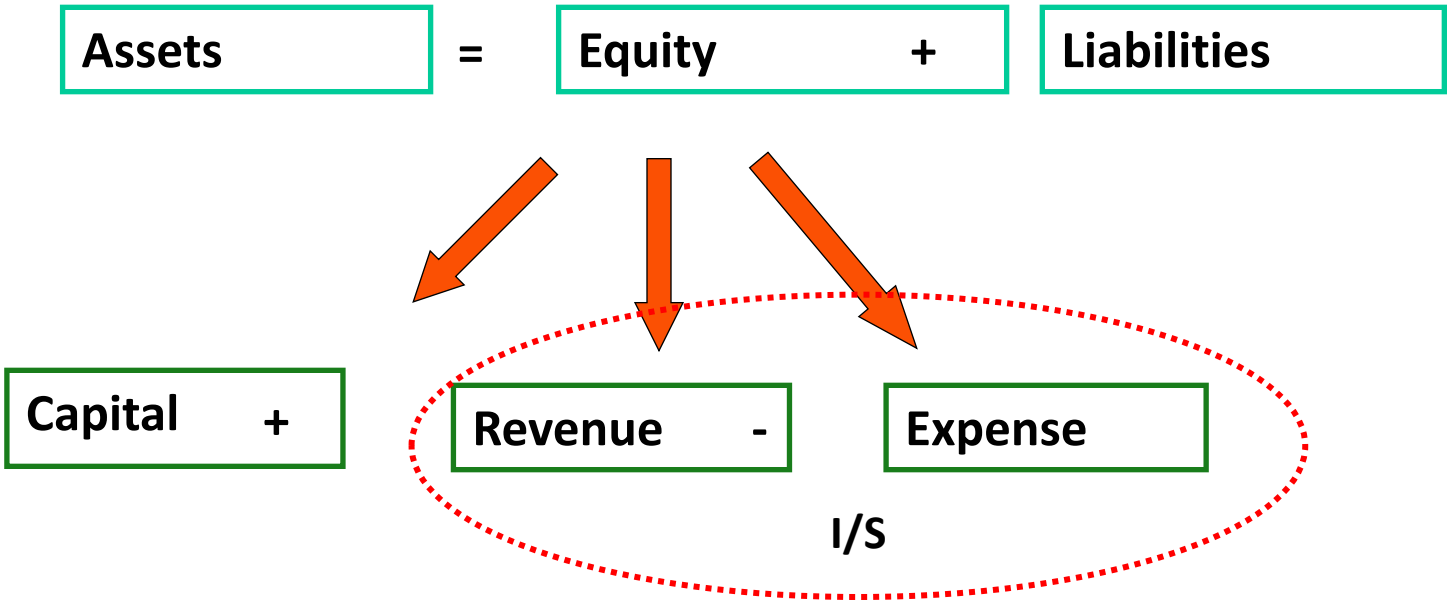
Flow of information in an accounting system



Flow of information in an accounting system

- **Information flows through an accounting system in four steps:**
  - **Journal entries** record every transaction, showing which accounts are changed and by what amounts. A listing of all the journal entries in order of their dates is called the general journal.(日记账)
  - **The general ledger** sorts the entries in the general journal *by account.* (分类账)
  - At the end of the accounting period, an initial trial balance is prepared that *shows the balances* in each account. If any adjusting entries are needed, they will be recorded and reflected in an adjusted trial balance.
  - The account balances from the adjusted trial balance are presented in the financial statements.

Accounting equation



$$\text{Asset} + \text{Expense} = \text{Capital} + \text{Revenue} + \text{Liablility}$$

Dr ↑	Dr ↓
Cr ↓	Cr ↑

Accounting equation

Accounting equation

- The basic accounting equation is the relationship among the three balance sheet elements:
  - ✓ assets = liabilities + owners' equity
- Expanded accounting equation
  - ✓ Owners' equity consists of capital contributed by the firm's owners and the cumulative earnings the firm has retained.
    - Owners' Equity = Contributed Capital + Retained earnings

Assets = Liabilities

+ Contributed capital

+ Ending retained earnings

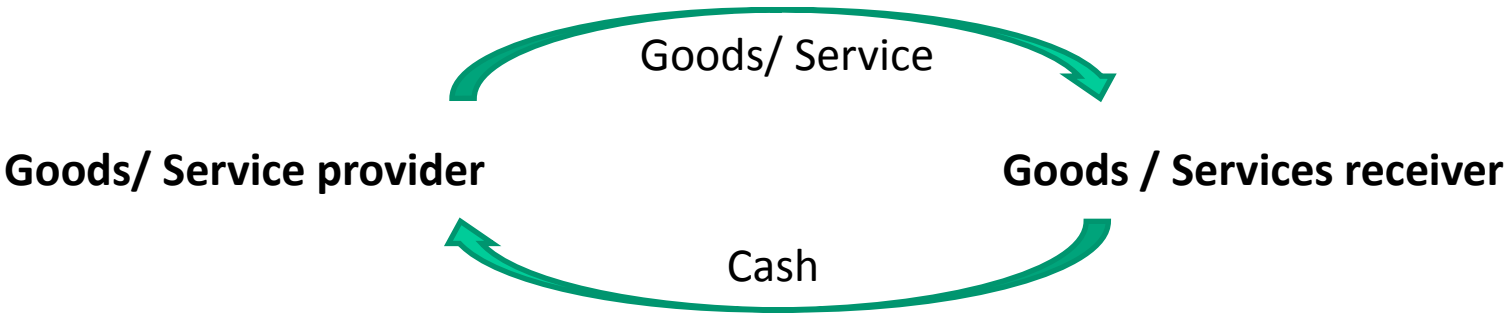
Accounting equation

Accounting equation

- Ending retained earnings for an accounting period are the result of adding that period's retained earnings (revenues minus expenses minus dividends) to beginning retained earnings.
  - ✓ Ending retained earnings = Beginning retained earnings
    + Net income
    – Dividend declared
    - Net income = Revenue – Expense

Assets = Liabilities
+Contributed capital
+Beginning retained earnings
+Revenue
- Expenses
- Dividend declared

Accrual accounting



Cash received in advance		Cash paid in advance
Unearned revenue		Prepaid expense

Cash received in arrears		Cash paid in arrears
Accrued revenue		Accrued expense

Accrual accounting

		Assets	Liabilities	Revenue	Expense	Equity
Unearned revenue	•No revenue recognized •A liability	↑	↑			
Accrued revenue	•Revenue recognition •An asset	↑		↑		↑
Prepaid expenses	•No expense recognized •An asset	↓ ↑				
Accrued expenses	•Expenses recognition •A liability		↑		↑	↓

Accrual accounting: Other Adjustment

- **Valuation adjustments:** Accounting entries that update these assets' values are called valuation adjustments.
  - Most assets are recorded on the financial statements at their historical costs.
  - However, accounting standards require balance sheet values of certain assets to *reflect their current market values*.
  - To keep the accounting equation in balance, changes in asset values also change *owners' equity*, through gains or losses *recorded on* the income statement or in "other comprehensive income."

Relationships among the income statement, balance sheet, statement of cash flows, and statement of owners' equity

Elements	Definition		Relationship
Assets	•Current assets •Non – current assets (Long-lived assets)	The Balance sheet	Assets = liabilities + owner's equity ↓ Owner's equity = Contributed capital +Beginning retained earning +Net income (current year) - Dividend (current year) +Other comprehensive income
Liabilities	•Current liabilities •Non – current liabilities (Long-term liabilities)		
Owner's equity	•Capital •Additional paid-in capital •Retained earnings •Other comprehensive income		
Revenue	•Sales •Investment income •Gains	The income statement	Revenue – expenses = net income (current year)
Expenses	•Cost of good sold •Other expense •losses		

Cash accounting and Cash flow statement

Cash flow from operations CFO	**the firm's primary activities of production and trade** •Cash revenue •Cash expense
Cash flow from investments CFI	**transaction to acquire or dispose of long-term assets** •Cash paid for purchase of plant and equipment •Cash from sale of plant and equipment
Cash flow from financing CFF	**transactions through which the firm raises or repays capital** •Cash received from share issue •Cash received from bond issue •Cash dividend paid

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Financial reporting standards: Standard-setting bodies

- **Standard-setting bodies**
  - Professional organizations of accountants and auditors that establish financial reporting standards
    - ✓ Financial Accounting Standards Board(FASB)
      - Sets U.S. GAAP (SFAS)
    - ✓ International Accounting Standards Board(IASB)
      - Sets International GAAP (IAS & IFRS)
  - **Desirable attributes** of standard-setters:
    - ✓ Observe high professional standards.
    - ✓ Have *adequate authority,* resources, and competencies to accomplish its mission.
    - ✓ Have clear and *consistent standard-setting* processes.
    - ✓ Guided by *a well-articulated* framework.
    - ✓ Operate *independently* while still seeking input from stakeholders.
    - ✓ Should not be *compromised by special* interests.
    - ✓ Decisions *are made in* the public interest.

Financial reporting standards: Regularly authorities

- **Regularly authorities**
  - **Government agencies** that have legal authority to enforce compliance with financial reporting standards.
    - ✓The Securities and Exchange Commission (SEC) in the U.S.
    - ✓The Financial Service Authority (FSA) in the U.K.
  - Most national authorities belong to the International Organization of Securities Commissions (IOSCO). The three objectives of financial market regulation according to IOSCO are to:
    - ✓(1) protect investors;
    - ✓(2) ensure the fairness, efficiency, and transparency of markets; and
    - ✓(3) reduce systemic risk. Because of the increasing globalization of securities markets, IOSCO has a goal of uniform financial regulations across countries.

SEC filings required

- **SEC filing requirements for publicly traded companies in the U.S.**
  - Form S-1
    - ✓ Registration statement filed prior to the sale of new securities to the public
  - Form 10-K
    - ✓ Annual financial statements
  - Form 10-Q
    - ✓ Quarterly financial statements
  - Form DEF-14A
    - ✓ Proxy statements
  - **Form 8-K**
    - ✓ Material events relating to
      - Significant assets acquisition and disposal
      - Changes in management or corporate governance
  - Form 144
    - ✓ Issue securities to certain qualified buyers without registering with SEC but notifying
  - Forms 3,4,5
    - ✓ The beneficial ownership of securities by a company's officers and directors

Barriers to developing one universally accept set of financial reporting standard

Barriers to developing one universally accept set of financial reporting standard

- One barrier to developing one universally accepted set of accounting standards (referred to as *convergence)* is simply that different standard-setting bodies and the regulatory authorities of different countries can and do disagree on the best treatment of a particular item or issue.
- Other barriers result from the political pressures that regulatory bodies face from business groups and others who will be affected by changes in reporting standards.

IASB conceptual framework

Reporting Elements

Qualitative Characteristics

Objective

To provide financial information useful making decisions about providing resources to the entity.

- **Relevance**
- **Faithful representation**
- **Comparability**
- **Verifiability**
- **Timeliness**
- **Understandability**

- **Performance**
  - Income
  - expenses
  - Capital maintenance adjustments
  - Past cash flows
- **Financial Position**
  - Assets
  - Liabilities
  - Equity

Constraint

- **Cost (cost/benefit considerations)**
- **Non-quantifiable information is not captured**

Underlying assumption

- **Accrual basis**
- **Going concern**

IASB conceptual framework

- **Qualitative Characteristics:** two fundamental characteristics
  - **Relevance.** Information is relevant if it would potentially affect or make a difference in user's decisions. *Relevant information* helps users of financial information to evaluate past, present, and future events, or to confirm or correct their past evaluations in a decision-making context. If omission or misstatement of information could influence decisions, it is considered relevant. Materiality is an aspect of relevance.
  - **Faithful representation.** Information that *is faithfully* representative is *complete (all information necessary is depicted), neutral (without bias), and free from error (no errors of commission or omission in the description of the economic phenomenon).* Faithful representation maximizes the qualities of complete, neutral, and free from error to the extent possible.

IASB conceptual framework

- **International Accounting Standards Board's conceptual framework**
  - Four characteristics that enhance relevance and faithful representation:
    - ✓ ***Comparability.*** Financial statement presentation should be consistent among firms and across time periods.
    - ✓ ***Verifiability.*** Independent observers, using the same methods, obtain similar results.
    - ✓ ***Timeliness.*** Information is available to decision makers before the information is stale.
    - ✓ ***Understandability.*** Users with a basic knowledge of business and accounting and who make a reasonable effort to study the financial statements should be able to readily understand the information the statements present. Useful information should not be omitted just because it is complicated.

IASB general requirements for financial statements

Required Financial Statements

- Statement of financial position (B/S)
- Statement of comprehensive income (Single statement or income statement + Statement of comprehensive income)
- Statement of changes in equity
- Statement of cash flows
- Notes, summarizing accounting policies and disclosing other items
- In certain cases, Statement of financial position from earliest comparative period

General Features

- Fair presentation
- Going concern
- Accrual basis
- Materiality and aggregation
- No offsetting
- Frequency of reporting
- Comparative information
- Consistency of presentation

Structure and Content

- Classified balance sheet
- Minimum specified information on face
- Minimum specified note disclosure
- Comparative information

IAS No.1 : fundamental principles for preparing F/S

- **General features for preparing financial statements**
  - **Going concern basis**
    - ✓Going concern basis meaning the financial statements are based on the assumption that the firm will continue to exist unless its management intends to (or must) liquidate it.
  - **Accrual basis of accounting**
    - ✓Accrual basis of accounting is used to prepare the financial statements other than the statement of cash flows.

IAS No.1 : fundamental principles for preparing F/S

- **General features for preparing financial statements**
  - Fair presentation
    - ✓Fair presentation defined as faithfully representing the effects of the entity's transactions and events according to the standards for recognizing assets, liabilities, revenues, and expenses.
  - Consistency
    - ✓Consistency between periods in how items are presented and classified, with prior-period amounts disclosed for comparison.
  - **Materiality**
    - ✓Materiality meaning the financial statements should be free of misstatements or omissions that could influence the decisions of users of financial statements.
  - Comparative information
    - ✓Comparative information for prior periods should be included unless a specific standard states otherwise.

IAS No.1 : fundamental principles for preparing F/S

➢ **General features for preparing financial statements**

- Aggregation
  - ✓Aggregation of similar items and separation of dissimilar items.
- No offsetting
  - ✓No offsetting of assets against liabilities or income against expenses unless a specific standard permits or requires it.
- Reporting frequency
  - ✓Reporting frequency must be at least annually.

IAS No.1 : structure and contents of F/S

- **The structure and content of financial statements**
  - Classified balance sheet
    - ✓Most entities should present a classified balance sheet showing current and non-current assets and liabilities.
  - Minimum information
    - ✓Minimum information is required on the face of each financial statement and in the notes. For example,
      - the face of the balance sheet must show specific items such as cash and cash equivalents, plant, property and equipment, and inventories.
      - Items listed on the face of the comprehensive income statement must include revenue, profit or loss, tax expense, and finance costs, among others.
  - Comparative information
    - ✓Comparative information for prior periods should be included unless a specific standard states otherwise.

Differences between IFRS and US GAAP

- Like the IASB, the FASB has a framework for preparing and presenting financial statements. The two organizations are working toward a common framework, but at present the two frameworks differ in several respects.
  - The IASB framework lists *income and expenses* as elements related to performance, while the FASB framework includes *revenues, expenses, gains, losses, and comprehensive income.*
  - The FASB defines an asset as a *future economic benefit*, whereas the IASB defines it as *a resource from which a future economic benefit is expected to flow*. Also, the FASB uses the word *probable* in its definition of assets and liabilities.
  - The FASB does not allow the upward valuation of most assets.

Differences between IFRS and US GAAP

- **A reconciliation statement**: In many cases, however, a company will present **a reconciliation statement** showing what its financial results would have been under an alternative reporting system.
- Even when a unified framework emerges, special reporting standards that apply to particular industries (e.g., **insurance and banking**) will continue to exist.

Coherent financial reporting framework

- A coherent financial reporting framework **should exhibit** transparency, comprehensiveness, and consistency.
  - **Transparency**

    Full disclosure and fair presentation create transparent.
  - **Comprehensiveness**

    An effective financial reporting framework is based on principles that are universal enough to provide guidance for recording both existing and newly developed transactions.
  - **Consistency**

    Similar transactions should be accounted for in a similar manner regardless of industry company size, geography, or other characteristics.

Barriers to Coherent financial reporting framework

- **Barriers to creating a coherent financial reporting framework include issues related to valuation, standard setting, and measurement.**
  - Valuation
    - ✓Measurement bases for valuation that require little judgment, such as historical cost, may be less relevant than a basis like fair value that requires more judgment.
  - Standard setting
    - ✓Three approaches to standard setting are a "principles-based" approach that relies on a broad framework, a "rules-based" approach that gives specific guidance about how to classify transactions, and an "objectives-oriented" approach that blends the other two approaches. IFRS is largely a principles-based approach. U.S. GAAP has traditionally been more rules-based, but the common conceptual framework is moving toward an objectives-oriented approach.
  - Measurement
    - ✓Another trade-off in financial reporting is between properly valuing the elements at one point in time (as on the balance sheet) and properly valuing the changes between points in time (as on the income statement). An "asset/liability" approach, which standard setters have largely used, focuses on balance sheet valuation. A "revenue/expense" approach would tend to place more significance on the income statement.

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Income Statement Format and Components

- **Net income = revenues - ordinary expenses + other income - other expense + gains - losses**
  - Revenues are the amounts reported from the sale of goods and services in the normal course of business.
    - ✓Revenue less adjustments for estimated returns and allowances is known as net revenue.
  - Expenses are the amounts incurred to generate revenue and include cost of goods sold, operating expenses, interest, and taxes.
    - ✓Expenses are grouped together by their nature or function.

Expenses grouped by nature or function

- **By nature:**
  - Presenting all depreciation expense from manufacturing and administration together in one line of the income statement.
- **By function:**
  - Combining all costs associated with manufacturing (raw materials, depreciation, labor, etc.) as cost of goods sold.

Income Statement Format and Components

- **Net income = (revenues - ordinary expenses) + (other income - other expense) + (gains – losses)**
  - **Gain or loss:** The difference between the sales price and book value is reported as a gain or loss on the income statement.
    - ✓Gains and losses result in an increase (gains) or decrease (losses) of economic benefits.
    - ✓Gains and losses may or may not result from ordinary business activities. Summarizing, net income is equal to income (revenues + gains) minus expenses (including losses). Thus, the components can be rearranged as follows:
  - **Non controlling interest**. If a firm has a controlling interest in a subsidiary, the pro rata share of the subsidiary's income not owned by the parent is reported in parent's income statement as the non controlling interest (also known as minority interest or minority owners' interest).
    - ✓The non controlling interest is subtracted in arriving at net income because the parent is reporting all of the subsidiary's revenue and expense.

Income Statement Format and Components

Net revenues **from Sales of goods and services**

– Cost of goods sold/Cost of service provided

Gross profit

– Other operating Expenses (SG&A)

Operating income from continuing operations

Operating components

+ Other Income and Revenues

Non operating components

Recurring income before interest and taxes from continuing operations

– Financing Costs

Recurring (pretax) income from continuing operations

The best indicator of future earnings

+/ – Unusual or Infrequent Items

Pretax income from Continuing Operations

– Income Tax Expense

Net Income from Continuing Operations

+/ – Income from Discontinued Operations (net of tax)

+/ – Extraordinary Items (net of tax)

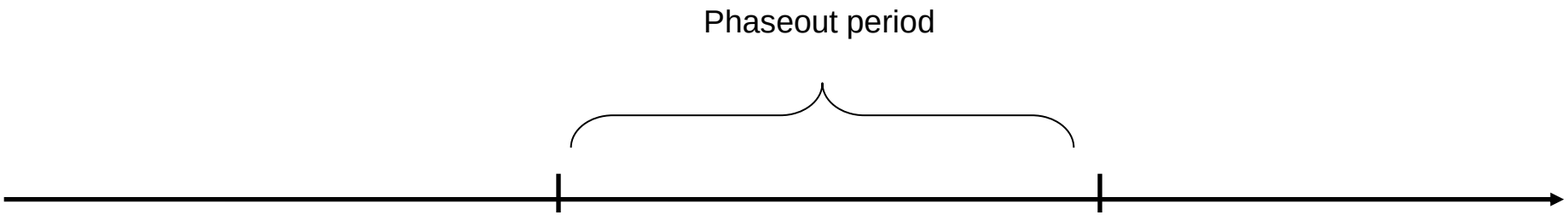
Net Income

Income Statement — Format

- **Unusual or infrequent items (nonrecurring items)**
  - reported "above the line" and presented on a pretax basis
    - ✓ G/L from the sale of assets or part of a business
    - ✓ Impairments, write-offs, write-downs, and restructuring costs.
- **Extraordinary items (presented on net of tax, unusual and infrequent)**
  - Loss from expropriation of assets;
  - Gains or losses from early retirement of debt;
  - Uninsured losses from natural disasters.
- **Discontinued operations (presented on net of tax)**
  - See next page.
- **Accounting changes (notes)**
  - Change in accounting principle (might be retrospective);
  - Change in accounting estimate (prospective and not a below line item).

Income Statement - Discontinued operations

Any income or loss from discontinued operations is reported separately in the income statement, net of tax, after income from continuing operations.



Any past income statements presented must be restated, separating the income and loss from the discontinued operations.

The date when the company develops a formal plan for disposing of an operation.

On the measurement date, the company will accrue any estimated loss during the phaseout period and any estimated loss on the sale of the business. Any expected gain on the disposal cannot be reported until after the sale is completed.

Income Statement Format and Components

- **Above the line**
  - Unusual or infrequent items (nonrecurring items)
    - ✓ Either unusual or infrequent but not both
    - ✓ Presented on a pretax basis
- **Below the line (presented on net of tax)**

Extraordinary items	Discontinued operations	Accounting changes
•Both unusual and infrequent(U.S.GAAP) •Examples : •**Losses from an expropriation assets** •**Gains or losses from early retirement of debt;** •**Uninsured losses from natural disasters.**	•The time between Measurement date and Disposal date → phase out period	•Change in accounting principle →retrospective application •Change in accounting estimate →prospective application (and not a below line item). •Errors →restate financial statement →Notes disclosure

Accrual accounting & revenue recognition

- **Under the accrual method of accounting**
  - Revenue is recognized when earned and expenses are recognized when incurred.
  - Accrual accounting does not necessarily coincide with the receipt or payment of cash.
  - Consequently, firms can manipulate net income by recognizing revenue earlier or later or by delaying or accelerating the recognition of expenses.
- **According to the International Accounting Standards Board** (IASB**),**
  - For sale of goods, revenue is recognized when:
    - ✓The risk and reward of ownership is transferred.
    - ✓There is no continuing control or management over the goods sold.
    - ✓Revenue can be reliably measured.
    - ✓There is a probable flow of economic benefits.
    - ✓The cost can be reliably measured.
  - For services rendered, revenue is recognized when:
    - ✓The amount of revenue can be reliably measured.
    - ✓There is a probable flow of economic benefits.
    - ✓The stage of completion can be measured.
    - ✓The cost incurred and cost of completion can be reliably measured.

Accrual accounting & revenue recognition

- **According to the Financial Accounting Standards Board (FASB), revenue is recognized in the income statement when**
  - realized or realizable and
  - earned.
- **The Securities and Exchange Commission (SEC) provides additional guidance by listing four criteria to determine whether revenue should be recognized:**
  - There is evidence of an arrangement between the buyer and seller.
  - The product has been delivered or the service has been rendered.
  - The price is determined or determinable.
  - The seller is reasonably sure of collecting money.

Accrual accounting & revenue recognition

- Matching principle .
  - Revenue is recognized when earned
  - Expenses are recognized when incurred

  } **Accrual accounting**

  - Expenses the directly related to revenue generation are recognized in the same period as the revenue

Firms can manipulate Net income by

recognizing revenue earlier or delaying the expenses recognition

Revenue recognition

	Condition	Methods		Descriptions
LT contract 计算	✓ Projects of long-term contract. ✓ Reliable estimates of the revenues, costs and completion time.	GAAP IFRS	Percentage-of-completion method	✓ Revenue, expense, and profit recognized as the work is performed. ✓ Percentage of completion measured by the total cost incurred to date divided by the total expected cost of the project
	✓ Projects of long-term projects. ✓ Outcome of the project **cannot be reliably estimated**.	GAAP	Completed contract method	Revenue, expense and profit are recognized only when the contract is complete.
		IFRS	✓ Revenue is recognized to the extent of contract costs. ✓ Costs are expenses when incurred ✓ Profits are recognized only at completion	

Example 24: POC and CC

- **Assume that AAA construction corporation has a contract to build a ship for $1,000 and a reliable estimate of the contract's total cost is $800. Project costs incurred by AAA are as follows:**

Year	2005	2006	2007	Total
Cost incurred	$400	$300	$100	$800

Determine AAA's net income from this project for each year using the percentage – of – completion and completed contract methods

Example 1

- **Answer：**
  - Percentage – of – completion

Year	2005	2006	2007	Total
Revenue	$500	$375	$125	$1,000
Expense	($400)	($300)	($100)	($800)
net income	$100	$75	$25	$200

  - Completed contract method

Year	2005	2006	2007	Total
Revenue	-	-	$1,000	$1,000
Expense	-	-	($800)	($800)
net income	-	-	$200	$200

Revenue recognition

POC vs. Completed-contract: Impact on F/S during one fiscal year

F/S	Items	POC	Completed Contract
CF/S	Cash flows	Same	Same
I/S	Income Volatility	Less	Reverse
	Net Income	Greater	

Revenue recognition

Installment contract (a firm finances a sale and payments are expected to be received over an extended period)	GAAP	Collectability cannot be reasonably estimated.	Installment sales method (Similar to percentage of completion method)	✓ Profit is recognized as cash is collected ✓ Profit is equal to cash collected during the period multiplied by the total expected profit as a percentage of sales ✓ Used in limited circumstances, eg. sale of estate or other firm assets
		Collectability is highly uncertain.	Cost recovery method (Similar to the completed contract method)	✓ Sales are recognized when cash is received ✓ Profit is recognized only when cash collected exceeds costs incurred.
	IFRS	Outcome can be reliably estimated	✓ The discounted **present value** of the installment payments is recognized at the time of sale. ✓ The difference between the installment payments and the discounted present value is recognized as interest over time	
		Outcome cannot be reliably estimated	Revenue recognition under IFRS is similar to cost recovery method	

Example 2

- **Assume BBB property corporation sells a piece of land for $1,000. the original cost of the land was $800. Collections received by BBB for the sale are as follows:**

Year	2005	2006	2007	Total
Collection	$400	$400	$200	$1,000

Determine BBB's profit under the installment and cost recovery methods.

Example 2

- **Answer:**
  - Installment method (US GAAP)

Year	2005	2006	2007	Total
Revenue	$400	$400	$200	$1,000
Expense	($320)	($320)	($160)	($800)
net income	$80	$80	$40	$200

  - Cost recovery method

Year	2005	2006	2007	Total
Revenue	$400	$400	$200	$1,000
Expense	($400)	($400)	-	($800)
net income	-	-	$200	$200

Revenue recognition – Difference between IFRS and US.GAAP

- **For long- term contracts**
  - When the outcome of a long-term contract can be reliably estimated
    - ✓ the percentage of-completion method is used under both IFRS and U.S. GAAP.
      - Accordingly, revenue, expense, and therefore profit, are recognized as the work is performed.
      - The percentage of completion is measured by the total cost incurred to date divided by the total expected cost of the project.
  - If the firm cannot reliably measure the outcome of the project
    - ✓ Under International Financial Reporting Standards (IFRS),
      - revenue is recognized to the extent of contract costs, costs are expensed
      - profit is recognized only at completion.
    - ✓ Under U.S. GAAP, the *completed-contract method* is used when the outcome of the project cannot be reliably estimated.
      - Accordingly, revenue, expense, and profit are recognized only when the contract is complete.
  - **If a loss is expected,** the loss must be recognized immediately under IFRS and U.S. GAAP.

Revenue recognition – Difference between IFRS and US.GAAP

For Installment Sales

- Under IFRS, the discounted present value of the installment payments is recognized at the time of sale.
- The difference between the installment payments and the discounted present value is recognized as interest over time.
- If the outcome of the project cannot be reliably estimated, revenue recognition under IFRS is similar to the cost recovery method.

Revenue recognition: barter transaction

- **Barter Transactions**
  - In a barter transaction, two parties exchange goods or services without cash payment.
  - A round-trip transaction involves the sale of goods to one party with the simultaneous purchase of almost identical goods from the same party. The underlying issue with these transactions is whether revenue should be recognized.
- According to U.S. GAAP
  - revenue from a barter transaction can be recognized at fair value only if the firm has historically received cash payments for such goods and services and can use this historical experience to determine fair value.
  - Otherwise, the revenue is recorded at the carrying value of the asset surrendered.
- Under IFRS
  - revenue from barter transactions must be based on the fair value of revenue from similar nonbarter transactions with unrelated parties.

Gross vs. Net reporting of revenue

- **Gross and Net Reporting of Revenue**
  - Under gross revenue reporting, the selling firm reports sales revenue and cost of goods sold separately.
  - Under net revenue reporting, only the difference in sales and cost is reported. While profit is the same, sales are higher using gross revenue reporting.
- **The following criteria must be met in order to use gross revenue reporting under U.S. GAAP. The firm must:**
  - Be the primary obligor under the contract.
  - Bear the inventory risk and credit risk.
  - Be able to choose its supplier.
  - Have reasonable latitude to establish the price.

Earnings per share (EPS)

Earnings per share (EPS)

- one of the most commonly used corporate profitability performance measures for publicly-traded firms (nonpublic companies are not required to report EPS data). EPS is reported only for shares of common stock (also known as ordinary stock).
  - ✓Basic EPS
  - ✓Dilutive EPS
    - Convertible debt
    - Convertible preferred stock
    - Stock option
    - Warrants

Basic EPS

- The **basic EPS** calculation does not consider the effects of any dilutive securities in the computation of EPS.

$$\text{basic EPS} = \frac{NI - div_{preferred\ stock}}{\text{weighted average number of common shares outstanding}}$$

- Weighted average number of common share outstanding
  - New issue, repurchase is weighted by time (days or months);
  - Stock dividend & stock split
    - ✓ A stock dividend is the distribution of additional shares to each shareholder in an amount proportional to their current number of shares. If a 10% stock dividend is paid, the holder of 100 shares of stock would receive 10 additional shares.
    - ✓ A stock split refers to the division of each "old" share into a specific number of "new" (post-split) shares. The holder of 100 shares will have 200 shares after a 2-for-1 split or 150 shares after a 3-for-2 split.
    - ✓ Stock dividend/split is not weighted by time, instead it should adjust the number of common share which exist before the stock dividend or split.

Example 3

- Johnson company has net income of $10,000 and paid $1,000 cash dividend to its preferred shareholders and $1,750 cash dividend to its common shareholders. At the beginning of the year, there were 10,000 shares of common stock outstanding. 2,000 new shares were issued on July 1. what is johnson's basic EPS?
- **Answer:**
  - Weighted average shares = 10,000 × (12/12) + 2,000 ×(6/12) = 11,000
  - BEPS = ($10,000 - $1,000)/11,000 = $0.82

Diluted EPS

- Dilutive securities & Antidilutive securities
  - Dilutive securities are stock options, warrants, convertible debt, or convertible preferred stock that would decrease EPS if exercised or converted to common stock.
  - Antidilutive securities are stock options, warrants, convertible debt, or convertible preferred stock that would increase EPS if exercised or converted to common stock.
- **In the case of diluted EPS, if there are dilutive securities, then the numerator must be adjusted as follows:**
  - If convertible preferred stock is dilutive (meaning EPS will fall if it is converted to common stock), the convertible preferred dividends must be added to earnings available to common shareholders.
  - If convertible bonds are dilutive, then the bonds' after-tax interest expense is not considered an interest expense for diluted EPS. Hence, interest expense multiplied by (1 - the tax rate) must be added back to the numerator.

Diluted EPS

- **When the firm has dilutive securities outstanding**
  - the denominator is the basic EPS denominator adjusted for the equivalent number of common shares that would be created by the conversion of all dilutive securities outstanding (convertible bonds, convertible preferred shares, warrants, and options), with each one considered separately to determine if it is dilutive.
- **If a dilutive security was issued during the year,**
  - the increase in the weighted average number of shares for diluted EPS is based on only the portion of the year the dilutive security was outstanding.
- Dilutive stock options or warrants increase the number of common shares outstanding in the denominator for diluted EPS. There is no adjustment to the numerator.

Diluted EPS

- **If the options or warrants are dilutive, use the treasury stock method to calculate the number of shares used in the denominator.**
  - The treasury stock method assumes that the funds received by the company from the exercise of the options would be used to hypothetically purchase shares of the company's common stock in the market at the average market price. (if EP<AMP, options or warrants are exercised)
  - The net increase in the number of shares outstanding (the adjustment to the denominator) is the number of shares created by exercising the options less the number of shares hypothetically repurchased with the proceeds of exercise.

Diluted EPS

$$\text{diluted EPS} = \frac{\text{adjusted income available for common shares}}{\text{weighted avg. common \& potential common shares outstanding}}$$

$$= \frac{\begin{bmatrix}\text{NI} \\ \text{- div}_{\text{preferred}}\end{bmatrix} + \begin{bmatrix}\text{div}_{\substack{\text{convertible} \\ \text{preferred}}}\end{bmatrix} + \begin{bmatrix}\text{interest}_{\substack{\text{convertible} \\ \text{debt}}}\end{bmatrix}(1-t)}{WACSO + \begin{bmatrix}\text{shares}_{\substack{\text{conversion of} \\ \text{conv. pfd. shares}}}\end{bmatrix} + \begin{bmatrix}\text{shares}_{\substack{\text{conversion of} \\ \text{conv. debt}}}\end{bmatrix} + \begin{bmatrix}\text{shares}_{\substack{\text{issuable from} \\ \text{stock opt.}}}\end{bmatrix}}$$

Diluted EPS

Example: Treasury stock method

- Baxter Company has 5,000 shares outstanding all year. Baxter had 2,000 outstanding warrants all year, convertible into one share each at $20 per share. The year-end price of Baxter stock was $40, and the average stock price was $30. What effect will these warrants have on the weighted average number of shares?
- Answer:
  - ✓If the warrants are exercised, the company will receive 2,000 x $20 = $40,000 and issue 2,000 new shares.
  - ✓The treasury stock method assumes the company uses these funds to repurchase shares at the average market price of $30.
  - ✓The company would repurchase $40,000 / $30 = 1,333 shares.
  - ✓Net shares issued would be 2,000 - 1,333 = 667 shares.

Example 4

- **EPS with convertible debt**

  During 2006 GF corp. reported net income of $115,600 and had 200,000 shares of common stock outstanding for the entire year. GF also had 1,000 shares of 10%, par $100 preferred stock outstanding during 2006. During 2005, GF issued 600, $1,000 par, 7% bonds for $600,000 (issued at par). Each of these bonds is convertible to 100 shares of common stock. The tax rate is 40%.

  Compute the 2006 basic and diluted EPS.

- **Answer：**
  - BEPS = ($115,600 - $100 × 1000 × 10%)/ 200,000 = 52.8 Cents
  - Adjusted income available for common shares = $115,600 – pref div $10,000 + int saving $600,000 × 7% × (1-40%) = $130,800
  - Weighted average common shares and potential shares = 200,000 + 600 × 100 = 260,000
  - DEPS = $130,800 / 260,000 = 50.3 Cents

Example 5

- **EPS with convertible preferred stock**

  During 2006, GF reported net income of $115,600, and had 200,000 shares of common and 1,000 shares of preferred stock outstanding for the entire year. GF's 10%, $100 par value preferred-stock are each convertible to 40 shares of common stock. The tax rate is 40%.

  Compute diluted EPS

- **Answer:**
  - Adjusted income available for common shares = $115,600
  - Weighted average common shares and potential shares = 200,000 + 1000 × 40 = 240,000
  - DEPS = $115,600 / 240,000 = 48.2 Cents

Example 6

- **EPS with Warrants/ Stock options**

  GF has 5000 shares outstanding all year. GF had 2000 outstanding warrants all year, convertible into one share each at $20 per share. The year-end price of GF stock was $40, and the average stock price was $30. If GF had net income of $10,000 of the year, what is GF basic and diluted EPS?

- **Answer：**
  - BEPS = $10,000/5,000 = $2.00
  - Adjusted income available for common shares = $10,000
  - Weighted average common shares and potential shares = 5,000 + 667 = 5,667
  - DEPS = $10,000 / 5,667 = $1.76

Shares outstanding	5,000
Warrants conversion	2,000
Treasury shares purchased	(1,333)
Denominator	5,667

Comprehensive income

- **Retained earnings**
  - At the end of each accounting period, the net income of the firm is added to stockholders' equity through an account known as retained earnings.
  - Therefore, any transaction that affects the income statement (net income) will also affect stockholders' equity.
- **Comprehensive income**
  - Comprehensive income is a more inclusive measure that includes all changes in equity except for owner contributions and distributions. That is, comprehensive income is the sum of net income and other comprehensive income. Other comprehensive income includes transactions that are not included in net income.
  - Other comprehensive Income for both GAAP and IFRS
    - ✓ 1.Foreign currency translation gains and losses.
    - ✓ 2.Adjustments for minimum pension liability.
    - ✓ 3.Unrealized gains and losses from cash flow hedging derivatives.
    - ✓ 4.Unrealized gains and losses from available-for-sale securities.
  - Under IFRS, other comprehensive income includes certain changes in the value of long-lived assets that are measured using the revaluation model rather than the cost model

Comprehensive income

Comprehensive income	
	$
Net income	50
Other comprehensive income:	
Foreign currency translation gains and (losses)	15
Adjustment for minimum pension liabilities	(10)
Unrealized gains and (losses) form cash flow hedging derivatives	3
Unrealized gains and (losses) form available – for –sale securities	2
Comprehensive income	70

The statement of changes in equity

➢ **A** summary **of all transactions within the equity accounts**

	Capital *a*	Additional paid – in capital *b*	Retained earnings *c*	Other comprehensive income *d*	Total (explanation)
Beginning balance	100	100	100	100	400 (=a+b+c+d)
Net income			50		50(=c)
Other Comprehensive income				20	20(=d)
Comprehensive income					70 (subtotal)
Issuance of common stock	25	5			30 (= a+b)
Repurchased of common stock	(20)	(4)			(24) (= a+b)
Dividend			(15)		(15) (= c)
Ending balance	105	101	135	120	461(subtotal = a+b+c+d)

Equity in the B/S

F.R.A

- **SS7**
  - R22: Financial Statement Analysis: An Introduction
  - R23: Financial Reporting Mechanics
  - R24: Financial Reporting Standards
- **SS8**
  - R25: Understanding the I/S
  - R26:Understanding the B/S
  - R27: Understanding the C/F
  - R28: Financial Analysis Techniques
- **SS9**
  - R29: Inventories
  - R30: Long-Lived Assets
  - R31: Income Taxes
  - R32: Long-Term Liabilities and Leases
- SS10
  - R33: Financial Reporting Quality: Red Flags and Accounting Warning Signs
  - R34: Accounting Shenanigans on the Cash Flow Statement
  - R35: Financial Statement Analysis: Applications

Balance Sheet format and components

- **Assets :**
  - Provide probable future economic benefits controlled by an entity as a result of previous transactions.
  - Current and Non–current assets (Long–lived assets)
- **Liabilities :**
  - Are obligations owed by an entity from previous transactions that are expected to result in an outflow of economic benefits in the future.
  - Current and Non–current liabilities (Long–term liabilities)
- **Stockholders' equity :**
  - Is the residual interest in assets that remains after subtracting a firm's liabilities.
- A financial statement item should be recognized if a future economic benefit from the item (flowing to or from the firm) is ***probable*** and the item's value or cost can be measured reliably.

Balance Sheet format and components

Assets :

Current assets	Cash and equivalents	Presented in the order of liquidity
	Accounts receivable	
	Inventory	
	Prepaid expenses	
	Short – term investments	
	Other current assets	
Non current assets	Property , plant and equipment (PPE)	
	Intangible assets	
	Long – term investments	
	Deferred tax assets	
	Pension assets	

Balance Sheet format and components

➢ Liabilities :

Current liabilities	Bank overdraft	In the order of •Maturity •Descending order by amount •In the event of liquidation
	Accounts payable	
	Accrued expenses	
	Unearned revenue	
	The current portion of long – term debt	
	Current taxes payable	
long – term liabilities	Notes payable	
	Bonds payable	
	Capital / Financial lease obligations	
	Pension liabilities	
	Deferred tax liabilities	

Balance Sheet format and components

➢ Stockholders' equity :

Capital	Common stock , preferred stock
Additional paid-in-capital	Capital in excess of par i.e. premium
Treasury stock	*Stock has been reacquired by the issuing firm but not yet retired* *No voting rights, no dividend*
Retained earnings	Net Income – Dividend
Accumulated other comprehensive income	• Foreign currency translation gains and losses. • Adjustments for minimum pension liability. • Unrealized gains and losses from cash flow hedging derivatives. • Unrealized gains and losses from available-for-sale securities
Minority interest / Non-controlling interest	*Group accounting*

Financial instruments

Category	Measurement	Unrealized/Realized Gains or Losses
Held-to-maturity	Amortized cost	Unrealized: not reported Realized: reported in income statement
Trading	Fair value	Unrealized: reported in income statement Realized: reported in income statement
Available-for-sale	Fair value	Unrealized: reported in equity Realized: reported in income statement

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  - R34: Accounting Shenanigans on the Cash Flow Statement
  - R35: Financial Statement Analysis: Applications

The cash flow statement

- **The cash flow statement provides information beyond that available from the income statement, which is based on accrual, rather than cash, accounting. The cash flow statement provides the following:**
  - Information about a company's cash receipts and cash payments during an accounting period.
  - Information about a company's operating, investing, and financing activities.
  - An understanding of the impact of accrual accounting events on cash flows.
- Items on the cash flow statement come from two sources
  - Income statement items
  - Changes in balance sheet accounts

    Operating cash flow

    \+ Investing cash flow

    \+ Financing cash flow

    = Change in cash balance for the current year

    \+ Beginning cash balance

    = Ending cash balance

  Non cash activities are not reported in the cash flow statement

Type of cash flows

- Cash flow from operating activities (CFO)
  - sometimes referred to as "cash flow from operations" or "operating cash flow," consists of the inflows and outflows of cash resulting from transactions that affect a firm's net income.
- Cash flow from investing activities (CFI)
  - consists of the inflows and outflows of cash resulting from the acquisition or disposal of long-term assets and certain investments.
- Cash flow from financing activities (CFF)
  - consists of the inflows and outflows of cash resulting from transitions affecting a firm’s capital structure
  - actions affecting a firm's capital structure.

Types of Cash flows

U.S. GAAP Cash Flow Classification

Cash flows from Operating Activities *Cash flows resulting from transaction that affect a firm's net income*	
Inflows	Outflows
Cash collected from customers	Cash paid to employees and suppliers
Sale proceeds from trading securities	Acquisition of trading securities
	Cash paid for other expenses Purchase trading
Interest received	Interest paid
Dividend received	
	Taxes paid

Type of cash flows

U.S. GAAP Cash Flow Classification

Cash flows from Investing Activities *Cash flows resulting from the acquisition or disposal of long – term assets and certain investments*	
Inflows	Outflows
Sale proceeds from fixed assets	Acquisition of fixed assets
Sale proceeds from debt & equity investments	Acquisition of debt & equity investments
Principal received from loans made to others	Loans made to others

Type of cash flows

U.S. GAAP Cash Flow Classification

Cash flows from Financing Activities *Cash flows resulting from transaction that affect a firm's capital structure*	
Inflows	Outflows
Principal amounts of debt issued	Principal paid on debt
Proceeds from issuing stocks	Payments to reacquire stock
	Dividends paid to shareholders

Type of cash flows

Items	U.S. GAAP	IFRS
Interest received	CFO	CFO or CFI
Interest paid	CFO	CFO or CFF
Dividends received	CFO	CFO or CFI
Dividends paid	CFF	CFO or CFF
Taxes paid	CFO	CFO, CFI or CFF
Bank overdrafts	CFF	Cash equivalents
Disclosure	Encourage *direct method*, but allows indirect method. If direct method presented, footnotes must also be provided of the indirect method.	Encourage *direct method,* but permits either. IFRS permits more flexibility in reporting

Direct method is encouraged

CFO calculation——Direct Method & Indirect Method

- **The *only* difference between the** indirect **and** direct methods **of presentation is in the** cash flow from operations (CFO).
- **Direct Method**
  - Converts an accrual-basis income statement into a cash-basis income statement.
    - ✓ CFO under the direct method can be computed using a combination of
      - The income statement
      - A statement of cash flows prepared under the indirect method
  - Two major sections in CFO under the direct method:
    - ✓ cash inflows (receipts)
    - ✓ cash outflows (payments).
- **Indirect Method (for CFO only)**
  - Net income is converted to operating cash flow by making adjustments for transactions that affect net income but are not cash transactions.
  - The direct method gives the analyst more information than the indirect method. The analyst can see the actual amounts that went to each use of cash and that were received from each source of cash, which can help the analyst to better understand the firm's performance over time and to forecast future cash flows.

Cash Flow Statement — Memorizing Tips

Liability

- + Δ; Namely, + (ending – beginning)

Assets

- - Δ ; Namely, - (ending – beginning)

A basic setting: To an entity

- Cash inflow: +
- Cash outflow: -

CFO calculation——Direct Method & Indirect Method

Calculation of CFO by Indirect method	
Net income	
+ Non-cash expenses or losses	Income statement items
- Non-cash revenues or gains	
+/- Non-operating items	
-Increase in non-cash operating asset accounts (Inventory, A/R)	Balance sheet items (working capital)
+Increase in operating liability accounts (A/P)	
=CFO	

CFO calculation——Direct Method & Indirect Method

- **1. An analyst gathered the following information from a company's 2005 financial statements ($ millions):**

Balances as of year ended 31 December	2004	2005
Retained earnings	120	145
Accounts receivable	38	43
Inventory	45	48
Accounts payable	36	29

The company declared and paid cash dividends of $10 million in 2005 and recorded depreciation expense in the amount of $25 million for 2005. The company's 2005 cash flow from operations ($ millions) was closest to

A. 25.

B. 35.

C. 45.

CFO calculation——Direct Method & Indirect Method

➢ **Answer：**

C is correct.

- Net income (NI) for 2005 can be computed as the change in retained earnings, $25, plus the dividends paid in 2005, $10.
- NI can also be calculated from the formula: beginning retained earnings + NI—dividends paid = ending retained earnings.
  - ✓ Depreciation of $25 would be added back to net income
  - ✓ while the increases in accounts receivable, $5, and in inventory, $3, would be subtracted from net income because they are uses of cash. The decrease in accounts payable is also a use of cash and, therefore, a subtraction from net income.
  - ✓ Thus, cash flow from operations for 2005 is $25 + $10 + $25 - $5 - $3 - $7 = $45 ($ millions).

CFO calculation——Direct Method & Indirect Method

Calculation of CFO by Direct method	
Cash received from customers	Opening A/R + net sales – Closing A/R=Net sales-ΔA/R+ Δ unearned revenue
- Cash paid to suppliers	= - COGS+ Depreciation included in COGS +ΔA/P - Δ Inventory (COGS = Opening Inventory + purchase – Closing Inventory)
- Cash paid to employees	Opening wage payables + wage expense – Closing wage payables =-wage expense+Δwage payables
- Interests paid	Opening interest payables + interest expense – Closing interest payables=- interest expense +ΔInterest payables +Amortization of bond discount-Amortization of bond premium
- Tax paid	Opening tax payables + income tax expense – Closing tax payables = - income tax expense +Δtax payables+ΔDTL-ΔDTA
= CFO	

CFO calculation——Direct Method & Indirect Method

- **2. An analyst gathered the following information from a company's 2004 financial statements ($ millions):**

year ended 31 December	2003	2004
net sales	245.80	254.60
Cost of goods sold	168.30	175.90
Accounts receivable	73.20	68.30
Inventory	39.00	47.80
Accounts payable	20.30	22.90

CFO calculation——Direct Method & Indirect Method

- **2. Based only on the information above, the company's 2004 statement of cash flows prepared using the direct method would include amounts ($ millions) for cash received from customers and cash paid to suppliers, respectively, that are *closest* to:**

	Cash received from customers	Cash paid to suppliers
A	249.7	182.1
B	259.5	169.7
C	259.5	182.1

- **Answer:**

  C is correct.

  - Cash received from customers = Sales + The decrease in accounts receivable = 254.6 + 4.9 = 259.5.
  - Cash paid to suppliers = Cost of goods sold + The increase in inventory - Increase in accounts payable = 175.9 + 8.8 – 2.6 = 182.1

Cash Flow Statement — Calculation

Cash collection = net sales
Cash inputs = — COGS
Cash expenses = — operating expenses
Cash interest = — interest expenses
Cash taxes = — income tax expenses

— ΔA/R + Δunearned revenue
— Δinventories + ΔA/P+ Dep
+ ΔO/P + Δaccruals
+ ΔI/P+ payable+(-) Amortization of bond discount(premium
+ ΔT/P + ΔDTL — ΔDTA

Net income

\+ Depreciation

+/- L/G not relating to operating activities

— Δ working capital (excluding cash, loan, dividend payables and N/P)

Note:Δhere means increase.

Calculation of CFO — Direct method

CFI Calculation

- **Cash used in purchase of fixed assets:**
  - Pay attention to the movement of fixed assets.
  - Book Value = Carrying value = Purchase cost – AD – Impairment
  - $BV_{end} = BV_{Begin}$ + Purchase – Disposal BV – Depreciation
- **Proceeds received from sale of fixed assets**
  - Gain or loss = proceeds received – disposal NBV
  - Gain or loss resulting from disposal of PP&E or other long term assets are NOT presented in the CFI; instead, cash generated should be calculated based on the gain or loss.
- **Review other non-current assets: an increase in these items using cash, and vice versa.**
- **CFI= - (BV_1 + Depreciation – BV_0) + Gain - Loss**

CFI Calculation

- 4. Silverago Incorporated, an international metals company, reported a loss on the sale of equipment of $2 million. In addition, the company's income statement shows depreciation expense of $8 million and the cash flow statement shows capital expenditure of $10 million, all of which was for the purchase of new equipment. Using the following information from the comparative balance sheets, how much cash did the company receive from the equipment sale?

Balances sheet item	12-31-2005	12-31-2006	change
Equipment	$100million	$105million	$5million
Accumulated depreciation equipment	$40million	$46million	$6million

A. $6 million.

B. $5 million.

C. $1 million.

CFI Calculation

➢ **Answer：**

C is correct.

- BV_0=100-40=60
- BV_1=105-46=59
- Dep=8
- CFI=-(BV_1+Dep-BV_0)+gain-loss=Proceeds of sale – Expenditure

  =-(59+8-60)-2=Proceeds of sale -10= -9

Proceeds of sale=1

CFF Calculations

- **All events that could have increased or decreased cash must be reconstructed.**
- **Review long-term debt and stock**
  - Increases supply cash and decreases use cash.
- **Dividend paid**
  - Dividend paid = - Dividend declared + Δdividend payables
  - Opening R/E + Net Income – Dividend declared = Ending R/E

CFF Calculation

- 5.Jaderong Plinkett Stores reported net income of $25 million, which equals the company's comprehensive income. The company has no outstanding debt. Using the following information from the comparative balance sheets (in millions), what should the company report in the financing section of the statement of cash flows?

Balances sheet item			change
Common stock	$100	$102	$2
Additional paid-in capital common stock	$100	$140	$40
Retained earnings	$100	$115	$15
Total stockholders' equity	$100	$357	$57

A. Issuance of common stock $42 million; dividends paid of $10 million.
B. Issuance of common stock $38 million; dividends paid of $10 million.
C. Issuance of common stock $42 million; dividends paid of $40 million.

- **Answer:**

A is correct.

- The increase of $42 million in common stock and additional paid-in capital indicates that the company issued stock during the year.
- The increase in retained earnings of $15 million indicates that the company paid $10 million in cash dividends during the year, determined as beginning retained earnings of $100 million plus net income of $25 million, minus ending retained earnings of $115, which equals $10 million in cash dividends.

Analysis of CFS

- Examine the major sources and uses of cash
- Evaluating individual cash flow items
  - Operating Cash Flow

    A check of the quality of a firm's earnings.
  - Investing Cash Flow

    Increasing capital expenditures, a use of cash, is usually an indication of growth.
  - Financing Cash Flow

    Whether the firm is generating cash flow by issuing debt or equity.

    Whether the firm is using cash to repay debt, reacquire stock, or pay dividends.
- Common-size analysis

$$\frac{\text{cash flow statement account}}{\text{revenues}}$$

$$\frac{\text{cash outflow}}{\textit{total}\ \text{cash outflows}} \qquad \frac{\text{cash inflow}}{\textit{total}\ \text{cash inflows}}$$

Analysis of CFO

Other cash flow ratios	
Performance ratios	Coverage ratio
CFO/ Revenue	CFO / Total debt
CFO/ Average total assets	CFO / Cash paid for long-term assets
CFO / Average total equity	CFO / Cash long-term debt repayment
CFO/ Operating income	CFO/ dividend paid
(CFO – Preferred dividends) / Weighted average number of common shares	CFO / Cash outflows from investing and financing activities
	(CFO + interest paid + taxes paid)/ Interest paid

Free Cash Flow

- Free cash flow **attempts to measure the cash available for discretionary purposes.**
- **Two common measure:**
  - Free cash flow to the firm (FCFF)
    - ✓ Cash available to all investors, both equity owners and debt holders
  - Free cash flow to equity (FCFE)
    - ✓ Cash available to equity owners

Cash Flow Statement — Free Cash Flow

- FCFF **is calculated from** *Net Income*:
  - FCFF = NI + NCC + [Int * (1 - tax rate)] – FCInv – WCInv

    = EBIT*(1-tax rate) + NCC – FCInv - WCInv

- FCFF **is calculated from** *CFO*:
  - FCFF = CFO + [Int * (1 - tax rate)] – FCInv

- FCFE **is calculated as follows:**
  - FCFE = CFO – FCInv + Net borrowing

Free Cash Flow

- FCFF = NI + NCC – WC Inv – FC Inv +[Int * (1 - tax rate)]

  FCFF = CFO – FC Inv +[Int * (1 - tax rate)]

- FCFE = CFO – FC Inv + Net borrowing

Where:

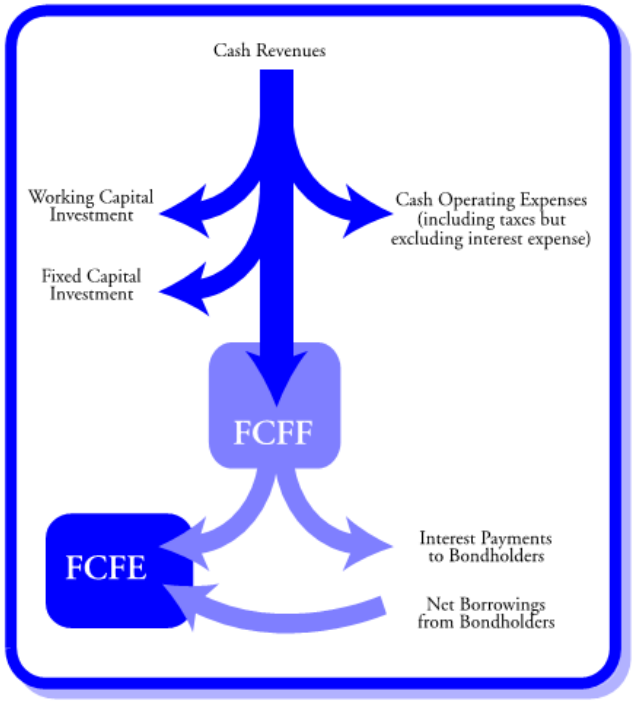
- NI = net income
- NCC = noncash charges (depreciation and amortization)
- Int = interest expense
- FCInv = fixed capital investment (net capital expenditure)
- WCInv = working capital investment
- Net borrowing = debt issued – debt repaid

***For firms follow IFRS that treat Dividend paid as part of CFO, the dividend paid must be added back for free cash flow calculation**

Free Cash Flow

Free cash flow

- Free cash flow **attempts to measure the cash available for discretionary purposes.**
- **Two common measure:**
  - Free cash flow to firm (FCFF)
  - Free cash flow to equity (FCFE)



- US GAAP :
  - FCFF = NI + NCC +[Int * (1 - tax rate)] – FC Inv – WC Inv
    = CFO + [Int * (1 - tax rate)] – FCInv
  - FCFE = CFO – FC Inv + Net borrowing

F.R.A

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Common – size analysis

- Common – size I/S $\dfrac{\text{income statement account}}{\text{revenues}}$
- Common – size B/S $\dfrac{\text{balance sheet account}}{\text{total assets}}$
- Common – size CFS $\dfrac{\text{cash flow statement account}}{\text{revenues}}$

$$\frac{\text{cash outflow}}{\textit{total}\ \text{cash outflows}} \qquad \frac{\text{cash inflow}}{\text{total cash inflows}}$$

Ratio and Ratio analysis

Categories of ratios

- Profitability ratio – ability to generate profit
- Activity ratio – efficiency in using assets to generate revenue
- Liquidity ratio – ability to pay short-term debt
- Solvency ratio – ability to pay long-tem debt
- Valuation ratio – analysis for investment in common equity

Profitability Ratios

- **Profit / Net revenue**

Gross profit margin = *Gross profits* / net revenue

Operating profit margin = *EBIT* / net revenue

Pretax margin = *EBT* / net revenue

Net profit margin = *NI* / net revenue

- **Profit / Capital**

Return on assets (ROA) = [NI + interest (1-t)] / average total assets

Operating return on assets = *EBIT* / average total assets

[*Return on total capital (ROTC) = EBIT / average total capital*]

Return on equity (ROE) = *NI* / average total equity

Return on common equity = *(NI*- Preferred Dividend*)* / average common equity

Activity Ratios

- A firm's efficiency in using assets to generate revenue
  - Turnover = Net revenue/ assets

Total asset turnover = net revenue/ average total assets

Fixed asset turnover = net revenue / average net fixed assets

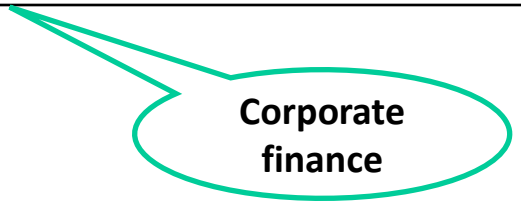
Working capital turnover = net revenue / average WC

Where:

Working capital = current assets – current liabilities

Activity Ratios

Inventory	A/R	A/P
Inventory turnover = COGS / average inventory	Receivables turnover = Net revenue / average A/R	Payables turnover = Purchases / average A/P
Average inventory processing period = 365 / inventory turnover	Average receivables collection period = 365 / receivables turnover	Average payment period = 365 / payables turnover
Operating cycle = collection period + inventory period		
Cash conversion cycle = collection period + inventory period - payment period.		



Liquidity Ratios

- A firm's ability to pay short – term debt

Current ratio = Current assets / Current liabilities

Quick ratio = [cash + marketable securities + receivable] / Current liabilities

= [current asset - inventories] / Current liabilities

Cash ratio = [cash + marketable securities] / Current liabilities

Defensive interval = (cash + marketable securities + receivables) / average daily expenditures

Solvency Ratios

- A firm's ability to pay long – term debt
- **Leverage**

Debt-to-equity ratio = D / E

Debt-to-capital= D/(D+ E)

Debt-to-assets = D / A

Financial leverage = A / E

- **Coverage**

Interest coverage = EBIT / Interest

Fixed charge coverage = (EBIT + lease payments) / (Interest + lease payments)

Valuation Ratios

	Numerator	Denominator
P / E	Price per share	Earnings Per share
P / CF		Cash flow per share
P / S		Sales per share
P / BV		Book Value per share

	Numerator	Denominator
BEPS & DEPS		
Cash flow per share	Cash flow from operations	Weighted average number of ordinary shares outstanding
EBITDA per share	EBITDA	
Dividends per share	Common dividends declared	

Sustainable growth rate

$$g = ROE \times RR = ROE \times \left(1 - \frac{div \text{ declared}}{\text{operating income after taxes}}\right)$$

	Company A	Company B
EPS	3	4
DPS	1.5	1
ROE	14%	12%

14% * 50% = 7%

12% * 75% = 9%

DuPont system of analysis

- 1.The three-part approach

$$\text{ROE} = \left(\frac{\text{net income}}{\text{sales}}\right) \times \left(\frac{\text{sales}}{\text{assets}}\right) \times \left(\frac{\text{assets}}{\text{equity}}\right)$$

$$= \begin{pmatrix}\text{net profit}\\ \text{margin}\end{pmatrix} \times \begin{pmatrix}\text{asset}\\ \text{trunover}\end{pmatrix} \times \begin{pmatrix}\text{leverage}\\ \text{ratio}\end{pmatrix}$$

It is not for the purpose of computing ROE, but for the purpose of decomposing the known ROE.

DuPont system of analysis

➢ 2. The five-part analysis

$$\text{ROE} = \left(\frac{\text{net income}}{\text{EBT}}\right)\left(\frac{\text{EBT}}{\text{EBIT}}\right)\left(\frac{\text{EBIT}}{\text{revenue}}\right)\left(\frac{\text{revenue}}{\text{assets}}\right)\left(\frac{\text{assets}}{\text{equity}}\right)$$

$$= \begin{pmatrix}\text{tax}\\ \text{burden}\end{pmatrix}\begin{pmatrix}\text{interest}\\ \text{burden}\end{pmatrix}\begin{pmatrix}\text{EBIT}\\ \text{margin}\end{pmatrix}\begin{pmatrix}\text{asset}\\ \text{trunover}\end{pmatrix}\begin{pmatrix}\text{leverage}\\ \text{ratio}\end{pmatrix}$$

- Tax burden = 1 – tax rate
- Interest burden = 1 – interest rate=(EBIT – Int)/EBIT = 1 – Int/EBIT

Equity analysis, Credit analysis and Segments analysis

Equity analysis – Valuation ratios

- Valuation ratios are used in analysis for investment in common equity.
  - ✓ The most widely used valuation ratio is the *price-to-earnings* (P/E) ratio, the ratio of the current market price of a share of stock divided by the company's earnings per share.
  - ✓ Related measures based on price per share are the *price-to-cash flow,* the *price-to-sales,* and the *price-to-book value* ratios.

Equity analysis, Credit analysis and Segments analysis

- **Credit analysis – A firm's ability to service and repay its debt (Credit risk)**
  - The analysis of a company's financial reports
  - A broad assessment of a company's operations
    - ✓ Meeting with management
    - ✓ Tours of major facilities.
    - ✓ Meeting of a ratings committee after considering factors that include :
      - Business risk
      - Financial risk - Interest coverage ratio, Return on capital, Debt - to - asset ratio and Ratios of cash flow to total debt, Z- score.

Credit Analysis

- Z – score

  $Z = 1.2\ A + 1.4\ B + 3.3\ C + 0.6\ D + 1.0\ E$

  Where:

  A = WC / TA

  B = RE / TA

  C = EBIT / TA

  D = MV of Equity / BV of Debt

  E = Revenue / TA

  - ✓ If $Z<1.8$ → Bankruptcy

F.R.A

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Inventory accounting

Cost of goods sold (COGS)

- Cost of goods sold (COGS) also referred to as cost of sales (COS) under IFRS, is related to the beginning balance of inventory, purchases, and the ending balance of inventory. The relationship is summarized in the following equation:
- COGS = beginning inventory + purchases - ending inventory
  - ✓This equation can be rearranged to solve for any of the four variables:
    - purchases = ending inventory - beginning inventory + COGS
    - beginning inventory = COGS - purchases + ending inventory
    - ending inventory = beginning inventory + purchases - COGS

Inventory accounting

- **Product costs**
  - The costs included in inventory are similar under IFRS and U.S. GAAP.
  - These costs, known as product costs, are capitalized in the Inventories account on the balance sheet and include:
    - ✓ Purchase cost less trade discounts and rebates.
    - ✓ Conversion costs including labor and overhead.
    - ✓ Other costs necessary to bring the inventory to its present location and condition.
  - *By capitalizing inventory cost as an asset, expense recognition is delayed until the inventory is sold and revenue is recognized*.
- **Period costs**
  - Not all inventory costs are capitalized; some costs are expensed in the period incurred. These costs, known as period costs, include:
    - ✓ Abnormal waste of materials, labor, or overhead.
    - ✓ Storage costs (unless required as part of production).
    - ✓ Administrative overhead.
    - ✓ Selling costs.

Inventory valuation method

- **If the cost of inventory remains constant over time, determining the firm's COGS and ending inventory is simple.**
  - To compute COGS, simply multiply the number of units sold by the cost per unit.
  - To compute ending inventory, multiply the number of units remaining by the cost per unit.
- **Since cost of purchasing or producing inventory will change over time, firms must select a** cost flow method **(known as the cost flow assumption under U.S. GAAP and cost flow formula under IFRS) to allocate the inventory cost to the income statement (COGS) and the balance sheet (ending inventory).**
  - Under IFRS, the permissible methods are:
    - ✓ Specific identification.
    - ✓ First-in, first-out.
    - ✓ Weighted average cost.
  - U.S. GAAP permits these same cost flow methods, as well as the last-in, first-out (LIFO) method. LIFO is not allowed under IFRS.
  - *The firm must employ the same cost flow method for inventories of similar nature and use.*

Inventory valuation method

- **Specific identification method**
  - Under the specific identification method, each unit sold is matched with the unit's actual cost.
    - ✓Specific identification is appropriate when inventory items are not interchangeable and is commonly used by firms with a small number of costly and easily distinguishable items such as jewelry.
    - ✓Specific identification is also appropriate for special orders or projects outside a firm's normal course of business.
- **First-in, first-out (FIFO)**
  - Under the first-in, first-out (FIFO) method, the first item purchased is assumed to be the first item sold.
    - ✓The advantage of FIFO is that ending inventory is valued based on the most recent purchases, arguably the best approximation of current cost.
    - ✓Conversely, FIFO COGS is based on the earliest purchase costs. In an inflationary environment, COGS will be understated compared to current cost. As a result, earnings will be overstated.

Inventory valuation method

- **Last-in, first-out (LIFO)**
  - Under the last-in, first-out (LIFO) method, the item purchased most recently is assumed to be the first item sold.
    - ✓ In an inflationary environment, LIFO COGS will be higher than FIFO COGS, and earnings will be lower. Lower earnings translate into lower income taxes, which increase cash flow.
    - ✓ Under LIFO, ending inventory on the balance sheet is valued using the earliest costs. Therefore, in an inflationary environment, LIFO ending inventory is less than current cost.
- **Weighted average cost**
  - The average cost per unit of inventory is computed by dividing the total cost of goods available for sale (beginning inventory + purchases) by the total quantity available for sale.
    - ✓ To compute COGS, the average cost per unit is multiplied by the number of units sold.
    - ✓ Similarly, to compute ending inventory, the average cost per unit is multiplied by the number of units that remain.
  - *During inflationary or deflationary periods, the weighted average cost method will produce an inventory value between those produced by FIFO and LIFO..*

Inventory valuation method

Method	Assumption	Cost of goods sold consist of…	Ending inventory consists of…
FIFO (U.S. and IFRS)	The items first purchased are the first to be sold.	first purchased	More recent purchases
LIFO (U.S. only)	The items last purchased are the first to be sold.	last purchased	Earliest purchases
Weighted average cost AVCO (U.S. and IFRS)	Items sold are a mix of purchases.	Average cost of all items	Average cost of all items

Inventory valuation method

- **Being the time of** raising price

Better

	FIFO	LIFO	AVCO
B/S Ending inventory	110,000	105,000	109,091
I/S COGS	490,000	495,000	490,909

Better

- **LIFO provides the most useful estimate of COGS on the I/S**
- **FIFO provides the most useful estimate of Inventory value on the B/S**

Example 7 :Inventory valuation method

- **Example 1: Zimt AG uses the FIFO inventory accounting method, and Nutmeg Inc. uses the LIFO method. Compared to the cost of replacing the inventory, during periods of rising prices the cost of goods sold reported by**

  A. Zimt is too low.

  B. Nutmeg is too low.

  C. Nutmeg is too high.

- **Answer :**

  A is correct.

  - Zimt uses the FIFO method, so its cost of goods sold represents units purchased at a (no longer available) lower price. Nutmeg uses the LIFO method, so its cost of goods sold is approximately equal to the current replacement cost of inventory.

Inventory valuation method

In periods of **rising prices** and **stable /increasing inventory quantities**

		LIFO	FIFO
I/S		Higher COGS	Lower COGS
		Lower EBIT	Higher EBIT
		Lower taxes	Higher taxes
		Lower net income(EAT)	Higher net income (EAT)
B/S		Lower inventory balances	Higher inventory balances
		Lower working capital	Higher working capital
CF/S		Higher CFO(↓ taxes paid)	Lower CFO(↑ taxes paid)
Ratios	Profitability	Lower net and gross margins	Higher net and gross margins
	Liquidity	Lower current ratio	Higher current ratio
	Solvency	Higher D/A and D/E	Lower D/A and D/E
	Activity	Higher inventory turnover	Lower inventory turnover

Inventory systems*

Periodic	Perpetual
•Inventory value and COGS are determined at the end of an accounting period •Need a purchase account	•Inventory value and COGS are updated continuously •Inventory purchased and sold is recorded directly in inventory •A purchase account is not necessary
•Same result for FIFO & Specific identification method •Different result for LIFO & AVCO	

Example 8

Jan 1 beginning inventory	2 units @$2 each
Jan 7 purchase	3 units @ $3 each
Jan 12 sale	4 units
Jan 19 purchase	5 units @ $5each
Jan 29 sale	3 units
Calculate COGS and ending inventory under the FIFO and LIFO cost flow method using the two inventory systems	

Example 8 – FIFO (Periodic)*

Jan sale of 7 units consists of:			
Units	From	Costs	$
2	Jan 1 beginning inventory	2 units @ $2each	4
3	Jan 7 purchase	3 units @$3 each	9
2	Jan 19 purchase	2 units @ $5 each	10
	Total		23
Jan ending inventory			
Units	From	Costs	$
3	Jan 19 purchase	3 units @$5 each	15
	Total		15

Example 8 – FIFO (Perpetual)*

Same result under FIFO

Jan 12 sale of 4 units consists of:			
Units	From	Costs	$
2	Jan 1 beginning inventory	2 units @$2 each	4
2	Jan 7 purchase	2 units @ $3 each	6
	Total		10

Jan 29 sale of 3 units consists of :			
Units	From	Costs	$
1	Jan 7 purchase	1 units @ $3 each	3
2	Jan 19 purchase	2 units @ $5each	10
	Total		13

COGS = $23

Jan ending inventory			
Units	From	Costs	$
3	Jan 19 purchase	3 units @$5 each	15

Example 8 – LIFO (Periodic)*

Jan sale of 7 units consists of:			
Units	From	Costs	$
5	Jan 19 purchase	5 units @ $5each	25
2	Jan 7 purchase	2 units @$3 each	6
	Total		31
Jan ending inventory			
Units	From	Costs	$
2	Jan 1 beginning inventory	2 units @$2 each	4
1	Jan 7 purchase	1 units @$3 each	3
	Total		7

Example 8 – LIFO (Perpetual)*

Different result under LIFO

Jan 12 sale of 4 units consists of:			
Units	From	Costs	$
3	Jan 7 purchase	3 units @$3 each	9
1	Jan 1 beginning inventory	1 units @ $2 each	2
	Total		11

Jan 29 sale of 3 units consists of :			
Units	From	Costs	$
3	Jan 19 purchase	3 units @ $5each	15
	Total		15

COGS = $26

Jan ending inventory			
Units	From	Costs	$
1	Jan 1 beginning inventory	1 units @$2 each	2
2	Jan 19 purchase	2 units @$5 each	10
	Total		12

Inventory valuation

U.S. GAAP	IFRS
The lower of	The lower of
•Cost Or •Market **•If replacement cost (RC) > NRV** **Market = NRV** **•If replacement cost (RC) < NRV – normal profit margin** **Market = NRV – normal profit margin** **•NRV – normal profit margin < RC < NRV** **Market = replacement cost**	•Cost Or •Net realizable value NRV = selling price – estimated cost of completion – selling costs
If Cost > Market •The inventory is written down to market on the B/S , and a loss is recognized in the I/S •No subsequent written – up is allowed	If Cost > NRV •The inventory should be written down to NRV on the B/S , and a loss is recognized in the I/S •Can be written up and a gain is recognized in the I/S

Example 9: Inventory valuation

- **The following information relates to Zoom Inc**
  - Original cost $210
  - Estimated selling price $225
  - Estimated selling cost $22
  - Replacement cost $197
  - Normal profit margin $12

  what are the per unit carrying value of Zoom's inventory under IFRS and U.S.GAAP
- **Answer**
  - Under IFRS
    - ✓ NRV = $225 - 22 = $203
    - ✓ Original cost = $210
    - ✓ The carrying value should be the lower, i.e. $203 with a impairment loss of $7 immediately recognized in I/S
  - Under U.S.GAAP
    - ✓ Replacement cost = $197
    - ✓ NRV– normal profit margin = $203 - $12 = $191
    - ✓ NRV = $203
    - ✓ NRV– normal profit margin < Replacement cost < NRV
    - ✓ Market = RC = $197
    - ✓ The carrying value should be the lower i.e.$197 with a impairment loss of $13 immediately recognized in I/S

Inventory management

- **How effectively a firm is managing its inventory**
  - Ratio analysis - Affected by the choice of inventory cost flow method
    - ✓Inventory changes - Changes in accounting policy

From other methods to LIFO	Other changes
Prospective application	Retrospective application
Explain / Demonstrate the change is preferable (result in reliable and more relevant information)	

  - Disclosure in footnotes – Useful in facilitating comparisons with other firms or industry average

Inventory Changes

- **A firm can change inventory cost flow methods although rare.**
  - **In most cases, the change is made retrospectively**:
    - ✓ The prior years' financial statements are recast based on the new cost flow method.
    - ✓ The cumulative effect of the change is reported as an adjustment to the beginning retained earnings of the earliest year presented.
  - Under IFRS
    - ✓ the firm must demonstrate that the change will provide reliable and more relevant information.
  - Under U.S. GAAP
    - ✓ the firm must explain why the change in cost flow method is preferable.
- **An exception to retrospective application applies when a firm changes to LIFO from another cost flow method. In this case, the change is applied prospectively; no adjustments are made to the prior periods.** With prospective application, the carrying value of inventory under the old method simply becomes the first layer of inventory under LIFO in the period of the change.

F.R.A

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Capitalize or Expense

- **How to treat *an expenditure* depending on the *nature of the expenditure***
  - Capitalize as an asset on the B/S;

  or

  - Recognize as an expenses in the I/S;

- **Remember: The asset you** capitalized today **will be** expensed in the future.

Impact on the Cash flow statement:

- **Capitalized expenditures** are classified as **CFI**
- **Expensed expenditures** are classified as **CFO**

Capitalize or Expense

F/S	Items	Capitalizing	Expensing
B/S & ratios	Total assets	Higher	Reverse
	Shareholders' equity	Higher	
	Leverage ratios (debt/equity & debt/assets)	Lower	
I/S & ratios	Income volatility	Lower	
	Net income – first year (ROA & ROE)	Higher	
	Net income – later years (ROA & ROE)	Lower	
CFS	Total cash flow	same	Same
	Cash flow from operating	Higher	Reverse
	Cash flow from investing	Lower	

Capitalizing Interest

➢ Under U.S.GAAP and IFRS

- When a firm constructs an asset for its own use or resale, the interest that accrues during the construction period must be capitalized as a part of the asset's cost

Items / Impacts	Interest expense	Income statement impacts	Net Income	Interest coverage ratio	CFI	CFO
First Year	No interest expense	no	Higher	Higher	Lower	Higher
Later Years		Depreciation expense	Lower	Lower		

- Implications for analysis

Treat as normal interest

i.e. interest expense charged to I/S directly, and classified as part of CFO

Depreciation

- **Depreciation**
  - Depreciation is the systematic allocation of an asset's cost over time. Two important terms are:
    - ✓ Carrying (book) value. The net value of an asset or liability on the balance sheet. For property, plant, and equipment, carrying value equals historical cost minus accumulated depreciation and impairment.
    - ✓ Historical cost. The original purchase price of the asset including installation and transportation costs. Historical cost is also known as *gross investment in the asset.*
    - ✓ Depreciation is a real and significant operating expense. Even though depreciation doesn't require current cash expenditures (the cash outflow was made in the past when the asset was purchased), it is an expense nonetheless and cannot be ignored.
- **The analyst must decide whether the reported depreciation expense is more or less than *economic depreciation,* which is the actual decline in the value of the asset over the period.**
- **Depreciating the rental assets by a greater amount during the first year would have better approximated economic depreciation and reduced reported income.**

Depreciation

Depreciation		
Straight-Line	Accelerated Depreciation	Units – of – production
SL depreciation expense = $\frac{\text{cost} - \text{residual value}}{\text{useful life}}$	*Double – declining* balance(DDB) DDB depreciation in year X = (2/asset life in years) × net book value at the beginning of year X	$\frac{\text{original cost - salvage value}}{\text{life in output units}} \times$ output units in the period

Depreciation

Depreciation impacts in early years	Straight line	Accelerated (DDB)
Depreciation expense	Lower	Reverse
Net income	Higher	
Assets	Higher	
Equity	Higher	
ROA	Higher	
ROE	Higher	
Total asset turnover ratios	Lower	Higher
Cash flow – Tax	Same	Same

Depreciation

- **The choice of useful life and residual value / salvage value**
  - longer useful life & higher residual value
    - ✓ Lower depreciation expense and higher net income
  - Relevant accounting treatments

Depreciation expense can be allocated to		
Cost of goods sold (COGS)	Or	Selling , general and administration expense (SG&A)
Affect GP Margin		Affect OP margin

	U.S. GAAP	IFRS
Residual /Salvage value	Downward only	Allowed to adjust the estimated residual value either upward or downward
Component depreciation*	Rarely used	Required

Intangible Assets

- **Long – term assets without *physical substance***

Identifiable IA	Unidentifiable IA	Internally generated
•Can be purchased separately •e.g. Patents, Trademarks, Copyright purchased externally •Some have a finite useful life and others have an indefinite useful life	•Cannot be purchased separately and may have an indefinite life •e.g. Goodwill	•Cannot be capitalized on B/S •e.g. Research and Development cost under U.S. GAAP
Capitalized on the B/S		**•Expensed as incurred**

IA with a finite UL – Amortization over UL (SL, Zero salvage value)

IA with an indefinite UL - Annual impairment test

Intangible Assets

Type of Expenditure	IFRS	U.S.GAAP
Research	Expense as incurred	
Development	Capitalize if certain criteria are met	Expense as incurred Except for : ·Costs to develop a software •For sales to others •Expensed as incurred. •Once economic feasibility is established, subsequent production costs can be capitalized. •For own internal use •Capitalized

Intangible assets

	Measurement	
	Historical costs	Carrying value
Also called:	•The gross investment in the assets	•The carrying amount •The net book value •The book value •The ending net investment in assets
Measurement	initial measurement Equals to The original purchase price	Subsequent measurement Equals to Historical costs → Cost model – accumulated amortization – accumulated impairment losses or *Revaluation (IFRS only)* → *Revaluation model*

Impairment of assets

Tangible assets	Intangible assets
•Held for use Impairment indicators ⬇ Impairment test •Held for sale **No depreciation** **Immediate impairment test** **If Carrying value > NRV**	•Held for use Goodwill & Other IA with indefinite useful life ⬇ Annual impairment test •Held for sale **No amortization** **Immediate impairment test** **If Carrying value > NRV**

Impairment of assets – U.S. GAAP

- **Step1 Recoverability test / Impairment test**

$$\begin{pmatrix}\text{carrying}\\ \text{value}\\ \text{of assets}\end{pmatrix} > \begin{pmatrix}\textit{undiscounted}\\ \textit{future cash flows}\\ \textit{generated by}\\ \textit{the assets}\end{pmatrix}$$

- **Step2 Loss measurement**

$$\begin{pmatrix}\text{carrying}\\ \text{value}\\ \text{of assets}\end{pmatrix} - \begin{pmatrix}\text{fair market value}\\ \text{or}\\ \text{PV of future CF}\end{pmatrix}$$

Impairment of assets – IFRS*

$$\left(\begin{array}{l}\text{carrying}\\ \text{value}\\ \text{of assets}\end{array}\right) > \left(\begin{array}{l}\text{Recoverable}\\ \text{amount}\end{array}\right)$$

The higher of	
Fair value less cost to sell	Value in use i.e. the present value of its future cash flow from continued use

Example 10

- **The following information is relating to the equipment owned by company B:**
  - Original cost $900,000
  - Accumulated depreciation $100,000
  - Expected future cash flow $825,000
  - Fair value $790,000
  - Value in use $785,000
  - Selling cost $30,000

Assuming company B will continue to use the equipment in the future, test the asset for impairment under U.S. GAAP and IFRS

Example 10

- **Answer**
  - U.S.GAAP
    - ✓ Carrying value = $900,000 - $100,000 = $800,000
    - ✓ Expected future cash flow = $825,000
    - ✓ Since Carrying value < Expected future cash flow, the equipment is not impaired
    - ✓ The B/S value of the equipment remains at $800,000
  - IFRS
    - ✓ Carrying value = $900,000 - $100,000 = $800,000
    - ✓ Fair value less cost to sell = $790,000 - $30,000 = $760,000
    - ✓ Value in use = $785,000
    - ✓ Recoverable amount = $ 785,000
    - ✓ Since Carrying value > recoverable amount, the equipment is impaired
    - ✓ The B/S value of the equipment is reduced to $785,000 with a impairment loss of $15,000 recognized in the income statement.

Impairment of assets

- **Once an asset is written down**
  - Under U.S.GAAP
    - ✓Held for use → recoveries are not allowed
    - ✓Held for sale → recoveries are allowed
  - Under IFRS, recoveries are allowed except for goodwill

Impairment of assets

Impairment Effects	
Cash flow	No effect
Assets	Decrease
Equity	Decrease
Debt/equity ratio	Increase
Current net income, ROA,ROE	Decrease
Future depreciation expense	Decrease
Future net income, ROA,ROE	Increase
Future asset turnover ratios	Increase

Revaluation of assets

U.S. GAAP	IFRS
Cost model	Cost model & Revaluation model

Permit upward revaluation of assets

- **Upward revaluation of assets will**
  - Increase assets and equity,

    → Decrease leverage ratios (D/E)
  - Increase comprehensive income in the period the revaluation occurs
  - In subsequent periods,

    ✓ Higher depreciation expense and lower profitability

    ✓ Lower ROA and ROE

Investment property

Investment property

- Under IFRS, property that a firm owns for the purpose of collecting rental income, earning capital appreciation, or both, is classified as investment property.
  - ✓A firm generally must use the same valuation model (cost or fair value) for all of its investment properties.
  - ✓If a fair value for the property can be established reliably, the firm could use a cost model or a fair value model when valuing investment property
- U.S. GAAP does not distinguish investment property from other kinds of long-lived assets.

Investment property

- **The cost model**
  - The cost model for investment property is the same as the cost model for valuing property, plant, and equipment,
- **The fair value model**
  - The fair value model is different from the revaluation model we described earlier.
    - ✓Under the revaluation model, any revaluation above historical cost is recognized as revaluation surplus in owners' equity.
    - ✓For investment property, however, revaluation above historical cost is recognized as a gain on the income statement.

Investment property

Transfer To or From Investment Property (Fair Value Model)

Transfer From	Transfer To	Financial Statement Treatment
Owner-occupied	Investment property	Treat as revaluation: recognize gain through I/S only if it reverses previously recognized loss
Inventory	Investment property	Recognize gain or loss if fair value is different from carrying amount
Investment property	Owner-occupied or inventory	Fair value of asset at date of transfer will be its cost under new classification

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Tax Return Terminology

- **Taxable income**: Income subject to tax based on the tax return.
- **Taxes payable**: The tax liability on the balance sheet caused by taxable income. This is also known as current tax expense, but do not confuse this with income tax expense (see below).
- **Income tax paid**: The actual cash flow for income taxes including payments or refunds from other years.
- **Tax loss carry forward**: A current or past loss that can be used to reduce taxable income (thus, taxes payable) in the future. Can result in a deferred tax asset.
- **Tax base**: Net amount of an asset or liability used for tax reporting purposes.

Financial Reporting Terminology

- **Accounting profit.：** Pretax financial income based on financial accounting standards. Also known as income before tax and earnings before tax.
- **Income tax expense：** Expense recognized in the income statement that includes taxes payable and changes in deferred tax assets and liabilities (DTA and DTL). The income tax expense equation is:

  income tax expense = taxes payable + △ DTL - △DTA

- **Deferred tax liabilities：** Balance sheet amounts that result from an excess of income tax expense over taxes payable that are expected to result in future cash outflows.
- **Deferred tax assets：** Balance sheet amounts that result from an excess of taxes payable over income tax expense that are expected to be recovered from future operations. Can also result from tax loss carryforwards.
- **Valuation allowance：** Reduction of deferred tax assets based on the likelihood the assets will not be realized.
- **Carrying value：** Net balance sheet value of an asset or liability.

Terminology

Tax reporting		Financial reporting	
Taxable income =	Taxable revenues - Tax deductible expenses	Pretax income (Accounting profit)	Earning before tax (EBT)
Taxes payable =	Taxable income x tax rate. Current tax expense in I/S	Income tax expense =	Current tax expense +/ - Deferred tax expense or income
Income tax paid =	Actual cash flow paid for income tax Cash outflow for tax in CFS	Deferred tax expense /(income)	Relating to two B/S items Deferred tax liability (DTL) Or Deferred tax asset (DTA)

Terminology

- **Timing difference**
  - Temporary difference
    - ✓ Difference will reverse

Deferred tax assets	Deferred tax liabilities
B/S amounts that result from an excess of tax payable over income tax expense that are expected to be recovered from future operations.	*B/S amounts* that result from an excess of income tax expense over taxes payable that are expected to result in future cash outflows.
$\begin{pmatrix}\text{taxes}\\ \text{payable}\end{pmatrix} > \begin{pmatrix}\text{income tax}\\ \text{expense}\end{pmatrix}$	$\begin{pmatrix}\text{taxes}\\ \text{payable}\end{pmatrix} < \begin{pmatrix}\text{income tax}\\ \text{expense}\end{pmatrix}$

  - Permanent difference
    - ✓ Difference will not reverse, thus no deferred tax issues

B/S approach to Deferred tax issue

- **Differences between the treatment of an accounting item for tax reporting and for financial reporting can occur when:**
  - The timing of revenue and expense recognition in the income statement and the tax return differ.
  - Certain revenues and expenses are recognized in the income statement but never on the tax return or vice-versa.
  - Assets and/or liabilities have different carrying amounts and tax bases.
  - Gain or loss recognition in the income statement differs from the tax return.
  - Tax losses from prior periods may offset future taxable income.
  - Financial statement adjustments may not affect the tax return or may be recognized in different periods.

B/S approach to Deferred tax issue

- **Two steps for Deferred tax**
  - Step 1 Identify DTL and DTA through a B/S approach,
  - Step 2 Calculate deferred tax expense
- **B/S approach**
  - Identify *Accounting base* and *Tax base* for every asset and liability item on B/S
  - Calculate the difference between two bases
    - For assets =

      accounting base – tax base

    - For liabilities =

      (- accounting base) – (- tax base)

- **Positive figure * tax rate = DTL**
- **Negative figure * tax rate = DTA**

Accounting Base & Tax Base - Assets

- **Example 11**

  Assets with and original Cost of $1,000,000

  Accounting depreciation (depreciation expense) = $100,000 p.a.

  Tax depreciation = $ 200,000 p.a.

	Accounting base	-	Tax base	=	Temporary difference	×	Tax rate	=	DTL in B/S
Year 1	900,000	-	800,000	=	100,000	×	30%	=	30,000
Year 2	800,000		600,000		200,000	×	30%	=	60,000

I/S income tax expense		B/S DTL	
Year 1	Year 2	Year 1	Year 2
30,000	30,000	30,000	60,000

Accounting Base & Tax Base - Assets

- An asset's tax base **is the amount that will be deducted (expensed) on the tax return in the future as the economic benefits of the asset are realized.**
- **Depreciable NCA**
  - Accounting base → Original cost – accumulated accounting depreciation
  - Tax base → Original cost – accumulated tax depreciation
- **R&D**
  - Accounting base (Expensed as incurred) → Zero
  - Tax base (Capitalized)→ Original cost - accumulated amortization
- **A/R**
  - Accounting base → Invoiced amount – allowance for bad debt
  - Tax base → Invoiced amount (do not recognize allowance)
- **Financial assets (for Trading and AFS financial assets held at Fair value)**
  - Accounting base → Fair value
  - Tax base →Amortized cost

Accounting Base & Tax Base - Liabilities

- **Example 12**

Customer advanced = 10,000 → Dr Cash 10,000

Cr Unearned revenue 10,000

Accounting base	-	Tax base	=	Temporary difference	×	Tax rate	=	DTA in B/S
-10,000	-	0	=	-10,000	×	30%	=	3,000

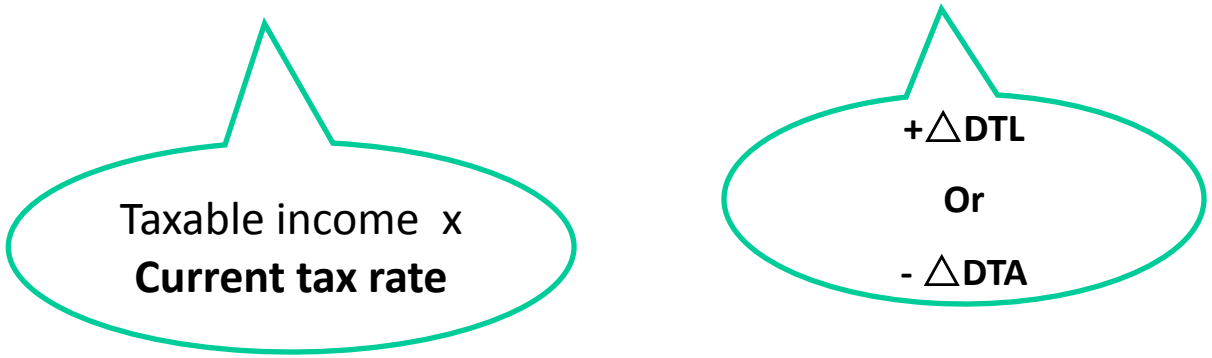
I/S income tax expense	B/S DTA
(3,000)	3,000

Accounting Base & Tax Base - Liabilities

- **Customer advance**
  - Accounting base (accrual accounting)→ Unearned revenue treat as a Liability
  - Tax base (cash accounting) →Revenue is recognized no liability arise → Zero
- **Warranty liability**
  - Accounting base (accrual accounting) →A liability is recognized for future obligation
  - Tax base (cash accounting) → Recognize a expense when a cash outflow incurred → Zero
- **Financial liabilities – Note payable (for Trading and AFS financial liability held at Fair value)**
  - Accounting base → Fair value
  - Tax base →Amortized cost

Measurement

➢Income tax expense = Current tax expense +/ - Deferred tax expense / income



- The ending balance of DTL or DTA is calculated at the end of each fiscal year, the net △ amount during current fiscal year
  - ✓ Tax rate applicable to the periods in which the DTA and DTL will be reversed (*forecast*).
  - ✓ Usually the current tax rate

Tax rate changes

- **If tax rate changes:**

  - New DTA or DTL = $\text{old DTA or DTL} \times \frac{\text{new tax rate}}{\text{old tax rate}}$

A change in accounting estimate

- The change in DTA and DTL due to the tax rate changes will be part of the current year △DTA and △DTL, and will impact the income tax expense for the year the changes take place.

Tax rate changes

➢**Example 13:** Carnation Corporation had a deferred tax liability of $30,000 on January 1,2002 that is expected to reverse in 2004. In 2002, Carnation generated pretax financial income of $300,000 and taxable income of $150,000 due to a difference in depreciation. The tax rate for 2002 is 30% but Congress enacted a reduction in tax rates effective January 1, 2003 to 25%, Carnation's income tax expense for 2002 is closest to:

A. $75,000.

B. $77,500.

C. $82,500.

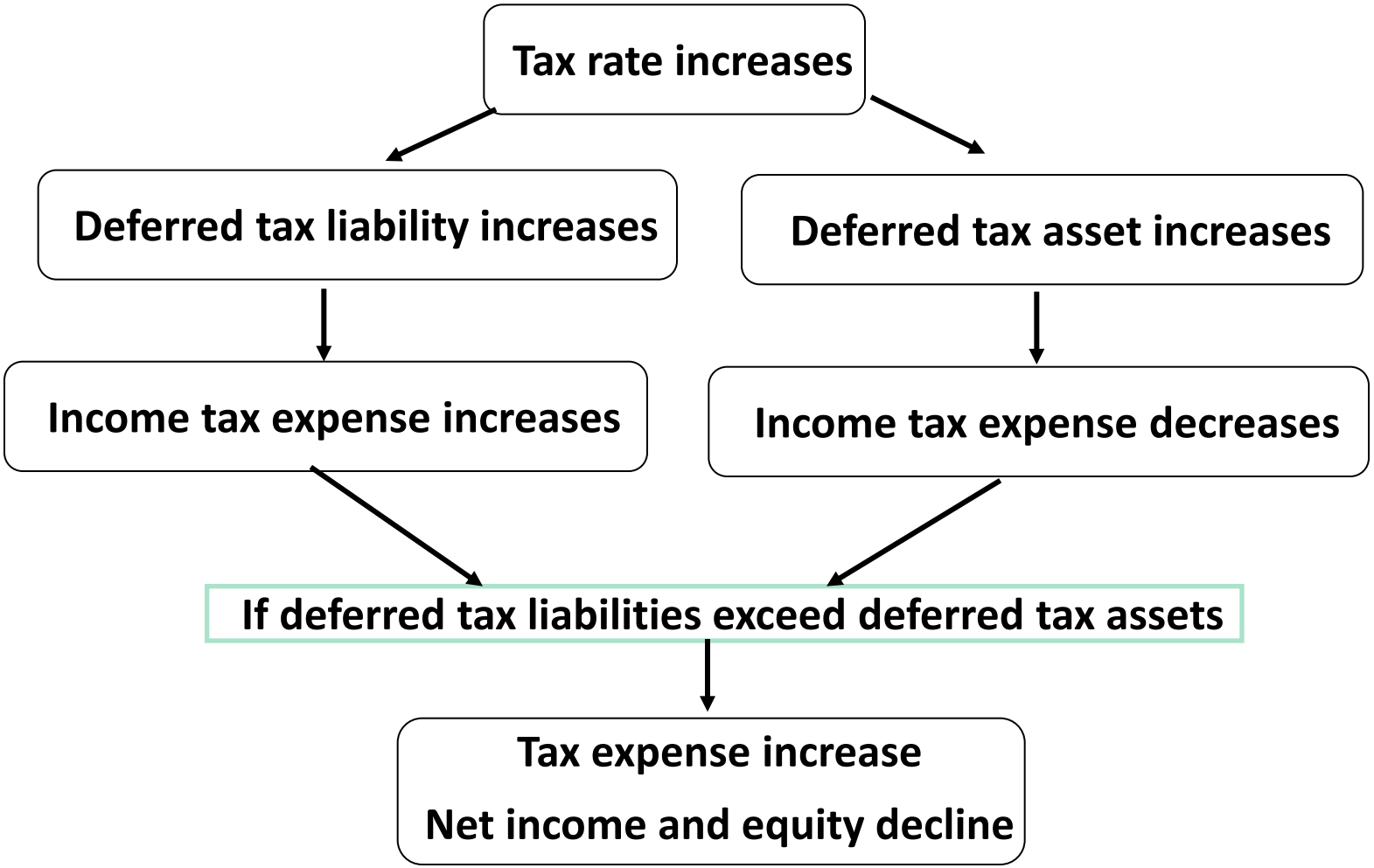
➢**Answer**

B is correct

- Current tax expense = 150,000 × 30% = 45,000
- Temporary difference balance at the end of 2002

  = 30,000 / 30% + 150,000 = 250,000
- Deferred tax expense = 250,000 × 25% -30,000 = 62,500 – 30,000 = 32,500
- Income tax expense = 45,000 + 32,500 = 77,500

Tax rate changes



Reversal of temporary difference

- Treatment of DTL
  - If unlikely to be reversed
    - ✓Treated as equity
  - If to be reversed
    - ✓Treated as true liability
  - If non-reversal/ reversal is uncertain
    - ✓Ignored
- Treatment of DTA
  - If <50% probability to be reversed
    - ✓Valuation allowance is created

$$DTA' = DTA - \begin{pmatrix} \text{valuation} \\ \text{allowance} \end{pmatrix}$$

$$\text{asset} \downarrow \ \& \text{income} \downarrow$$

Compare a company's deferred tax items.

- A deferred tax liability results from using accelerated **depreciation** for tax purposes and straight-line depreciation for the financial statements. The analyst should consider the firm's growth rate and capital spending levels when determining whether the difference will actually reverse.
- Impairments generally result in a deferred tax asset since the **writedown** is recognized immediately in the income statement, but the deduction on the tax return is generally not allowed until the asset is sold or disposed of.
- **Restructuring** generates a deferred tax asset because the costs are recognized for financial reporting purposes when the restructuring is announced, but not deducted for tax purposes until actually paid. Note that restructuring usually results in significant cash outflows (net of the tax savings) in the years after the restructuring costs are reported.

Compare a company's deferred tax items.

- In the United States, firms that use LIFO for their financial statements are required to use LIFO for tax purposes, so no temporary differences result. However, in countries where this is not a requirement, temporary differences can result from the choice of inventory cost-flow method.
- **Post-employment benefits and deferred compensation** are both recognized for financial reporting when earned by the employee but not deducted for tax purposes until actually paid. These can result in a deferred tax asset that will be reversed when the benefits or compensation are paid.
- A deferred tax adjustment is made to stockholders' equity to reflect the future tax impact of **unrealized gains or losses on available-for-sale marketable securities** ***that are taken directly to equity***. No DTL is added to the balance sheet for the future tax liability when gains/losses are realized.

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Bond

Bond

- Two types of cash flows
  - ✓Periodic payment of Interest/ Coupon CFO
    - → *Cash outflow* from operating activities
  - ✓Principal CFF
    - Amount received at issuance
      - →*Cash inflow* from financing activities
    - Principal repayment at maturity
      - →*Cash outflow* from financing activities

Analysis :

•Bond issue price (par, discount or premium)

→ Makes the difference on CFO & CFF

Example 14

- **A zero coupon bond issued on 1 January 2001 with 3 years to maturity and a redemption price of $1,000, the market interest rate at the time of issuance is 8%.**

$\frac{\$1,000}{1.08^3}$

$\$793.8 \times 8\%$

$\frac{\$1,000}{1.08^2} = \$793.8 + \$63.5$

	Beginning Book value 1st Jan	Interest expense 8%	Coupon payment	Ending Book value 31st Dec
Year 2001	793.8	63.5	0	857.3
Year 2002	857.3	68.6	0	925.9
Year 2003	925.9	74.1	0	1,000

Example 14

Cash inflow

CFF

	Beginning Book value 1st Jan	Interest expense 8%	Coupon payment	Ending Book value 31st Dec
Year 2001	793.8	63.5	0	857.3
Year 2002	857.3	68.6	0	925.9
Year 2003	925.9	74.1	0	1,000

?

Cash outflow

CFF

Example 14

Cash inflow

CFF

	Beginning Book value 1st Jan	Interest expense 8%	Coupon payment	Ending Book value 31st Dec
Year 2001	793.8	63.5	0	857.3
Year 2002	857.3	68.6	0	925.9
Year 2003	925.9	74.1	0	1,000

CFO cash outflow

Cash outflow

CFF

Example 15

- **On 31 Dec 2002, a company issued a three – year 10% annual coupon bond with a face value of $1000**
  - Market interest rate at issuance is 10%
  - Market interest rate at issuance is 8%
  - Market interest rate at issuance is 12%

What is the effect on B/S, I/S, CFS?

Example 15

- Market interest rate at issuance is 10% = Coupon rate → Issue at par

	Beginning BV 1st Jan	Interest expense 10%	Coupon	Ending BV 31st Dec
Year 2003	1000	100	(100)	1000
Year 2004	1000	100	(100)	1000
Year 2005	1000	100	(100)	1000

- ✓ B/S: The bond liability remains at face value over the life of the bond
- ✓ I/S: Interest expense = Coupon payment = $100
- ✓ CFS: CFO cash outflow → $100 p.a. = Coupon payment

  CFF cash inflow → $1000 on 31st Dec 2002 = Issue price

  cash outflow →$ 1000 on 31st Dec 2005 = Redemption price

Example 15

- Market interest rate at issuance is 8% < Coupon rate 10%→ Issue at premium

	Beginning BV 1st Jan	Interest expense @ 8%	Coupon @ 10%	Ending BV 31st Dec
Year 2003	1051.54	84.12	(100)	1035.66
Year 2004	1035.66	82.85	(100)	1018.52
Year 2005	1018.52	81.48	(100)	1000

- ✓ B/S: the bond liability will decrease towards the face value over the life of the bond

  i.e. Amortize the premium in issuance to zero over the life of the bond

- ✓ I/S: Interest expense < Coupon payment

  i.e. The amortization of premium will reduce the interest expense shown on I/S

$$\text{int. expn}_t = \text{coupon-prem. amortization}_t$$

Example 15

- CFS: CFO Cash outflow = Coupon payment → $100 p.a.
  - ✓ For analysis purpose, the interest expense and the amortization of the premium should be separated

    e.g. Year 2003

Cash outflow	Original CFO		CFO for F/A		CFF for F/A
	-100	=	-84.12	+	-15.88

  - ✓ Without adjustment
    - CFO is understated and CFF is overstated

Accounting for premium bond

Premium bond			
Time	B/S		I/S
T=0	Cash 1000	Bond payable 1000 UBP* 51.54	
T=1	Cash -100	UBP -15.88	Interest expense -84.12
T=2	Cash -100	UBP -17.15	Interest expense -82.85
T=3	Cash -100 Cash -1000	UBP -18.52 Bond payable -1000	Interest expense -81.48
*UBP: Unamortized bond premium			

Example 16

- **A bond with maturity of 3-year, the coupon rate 10% (annul payment), the market rate is 12%**
- **Price of bond when issuing:**

$$BV_0 = \frac{100}{(1+12\%)^1} + \frac{100}{(1+12\%)^2} + \frac{100+1000}{(1+12\%)^3} = 951.96$$

- **3N 100PMT 1000FV 12 I/Y CPT PV -951.96**

$$\begin{aligned}
&For\ \text{the}\ 1^{st}\ \text{year}: \\
&INT_1 = BV_0 \times r_m = 951.96 \times 12\% = 114.24 \\
&PMT_1 = 100 \\
&PRN_1 = PMT_1 - INT_1 = 114.24 - 100 = -14.24 \\
&BV_1 = BV_0 - PRN_1 = 951.96 - (-14.24) = 966.20
\end{aligned}$$

Accounting for discount bond

$$For\ \text{the}\ 2^{\text{nd}}\ \text{year}:$$

$$INT_2 = BV_1 \times r_m = 966.20 \times 12\% = 115.94$$

$$PMT_2 = 100$$

$$PRN_2 = PMT_2 - INT_2 = 115.94 - 100 = -15.94$$

$$BV_2 = BV_1 - PRN_2 = 966.20 - (-15.94) = 982.14$$

$$For\ \text{the}\ 3^{\text{rd}}\ \text{year}:$$

$$INT_3 = BV_2 \times r_m = 982.14 \times 12\% = 117.86$$

$$PMT_3 = 100$$

$$PRN_3 = PMT_3 - INT_3 = 117.86 - 100 = -17.86$$

$$BV_3 = BV_2 - PRN_3 = 982.14 - (-17.86) = 1000$$

Graph explanation for discount bond

Discount bond			
Time	B/S		I/S
T=0	Cash 1000 UBD* 51.54	Bond payable 1000	
T=1	Cash -100 UBD* -14.24		Interest expense -114.24
T=2	Cash -100 UBD* -15.94		Interest expense -115.94
T=3	Cash -100 UBD* -17.86 Cash -1000	 Bond payable -1000	Interest expense -117.86
*UBD: Unamortized bond discount			

Example 16

- CFS: CFO Cash outflow = Coupon payment → $100 p.a.
  - ✓ For analysis purpose, the interest expense and the amortization of the discount should be separated
    - Year 2003

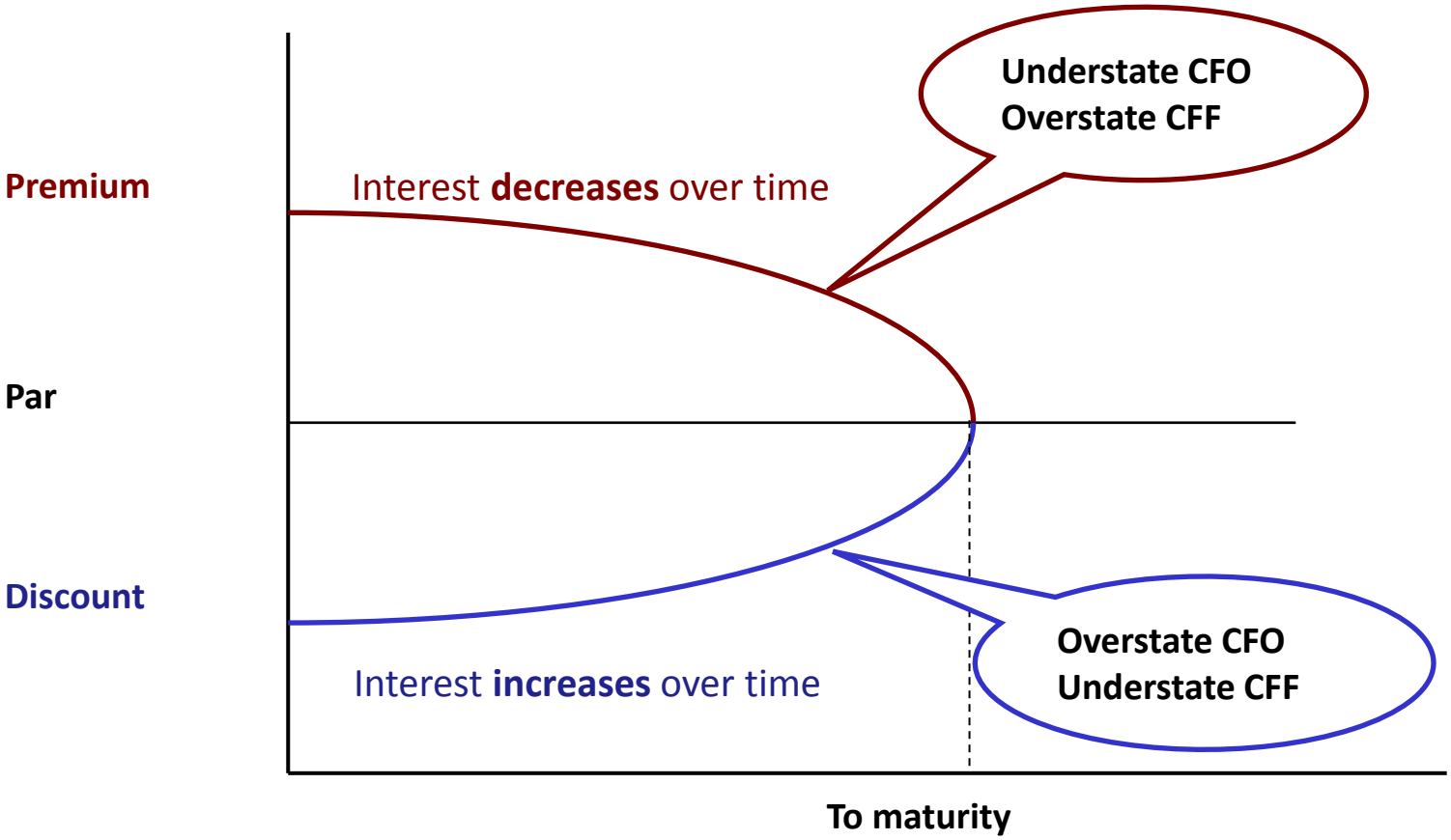
Cash outflow/ inflow	Original CFO		CFO for F/A		CFF for F/A
	-100	=	-114.24	+	+14.24

Cash inflow

  - ✓ Without adjustment
    - CFO is overstated and CFF is understated

Summary

Carrying value of bond on B/S



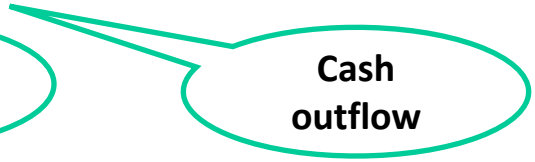
Summary

- **Par bond (Coupon rate = Market interest rate at issuance)**
  - B/S : Bond liability = Face value /Par value of bond
  - I/S : Interest expense = coupon payment

$$\text{Interest expense} = \begin{pmatrix}\text{market rate}\\ \text{at issue}\end{pmatrix} \times \begin{pmatrix}\text{balance sheet value of}\\ \text{liability at beginning of period}\end{pmatrix}$$

  - CFS
    - ✓ CFO = *Coupon payment* (= Interest expense)

    - ✓ CFF =Amount *received* and par value *paid* at expiration



Summary

- **Premium or discount bond**
  - B/S

$$\text{liability}_0 = \text{amount received}$$

$$\text{liability}_1 = \sum \frac{\text{all pay}_t}{(1+r_{issue})^t}$$

    - ✓ The amount of premium and discount is amortized over the time.
  - I/S
    - ✓ Premium (Coupon rate > Market rate) → Decrease over time

$$\text{int. expn}_t = \text{coupon-prem. amortization}_t$$

    - ✓ Discount (Coupon rate < Market rate) → Increase over time

$$\text{int. expn}_t = \text{coupon+disc. amortization}_t$$

  - CFS : No change for accounting /Adjust for F/A purpose

Issuance costs*

- Effective interest rate method
  - Using the effective interest rate method, interest expense is equal to the book value of the bond liability at the beginning of the period, multiplied by the bond's yield at issuance.
    - ✓ For a premium bond, interest expense is less than the coupon payment (yield < coupon rate). The difference between interest expense and the coupon payment is the amortization of the premium. The premium amortization is subtracted each period from the bond liability on the balance sheet. Thus, interest expense will decrease over time as the bond liability decreases.
    - ✓ For a discount bond, interest expense is greater than the coupon payment (yield > coupon rate). The difference between interest expense and the coupon payment is the amortization of the discount. The amortization of the discount each period is added to the bond liability on the balance sheet. Therefore, interest expense will increase over time as the bond liability increases.

Issuance costs*

- **Zero-coupon bonds**
  - A zero-coupon bond, also known as a pure-discount bond, is issued at a discount from its par value and its annual interest expense is implied, but not explicitly paid. The actual interest payment is included in the face value that is paid at maturity.
    - ✓ Zero-coupon bonds make no periodic interest payments.
    - ✓ The effects of zero-coupon bonds on the financial statements are qualitatively the same as any discount bond, but the impact is larger because the discount is larger.
- **Issuance Costs**
  - Issuing a bond involves legal and accounting fees, printing costs, sales commissions, and other fees.
    - ✓ Under U.S. GAAP, issuance costs are capitalized as an asset (deferred charge) and allocated to the income statement as an expense over the term of the bond.
    - ✓ Under IFRS, the initial bond liability on the balance sheet is reduced by the amount of issuance costs, increasing the bond's effective interest rate. In effect, issuance costs are treated as unamortized discount.
    - ✓ Under both U.S. GAAP and IFRS, bond issuance costs are usually netted against the bond proceeds and reported on the cash flow statement as a financing cash flow.

Fair value reporting option*

- **Fair Value Reporting Option**
  - Recall that the book value of a bond liability is based on its market yield at issuance. As long as the bond's yield does not change, the bond liability represents fair (market) value.
  - If the yield changes, the balance sheet liability is no longer equal to fair value.
- **An *increase* in the bond's yield will result in a *decrease* in the fair value of the bond liability.**
- **Conversely, a *decrease* in the bond's yield *increases* its fair value. Changes in yield result in a divergence between the book value of the bond liability and the fair value of the bond.**
- **The fair value of the bond is the economic liability at a point in time.**

Fair value reporting option*

- **Bond value = A present value of future cash flows**

$$BV=\sum \frac{(Int+Principal)_t}{(1+R_0)^t}$$

$$MV=\sum \frac{(Int+Principal)_t}{(1+R_t)^t}$$

- **U.S. GAAP & IFRS**
  - An option to report debt at its market /fair value with any gains/losses reported in the Income statement
  - For analysis, the market value is more appropriate

Fair value reporting option*

- **Example 17: Fairmont Golf issued fixed rate debt when interest rates were 6 percent. Rates have since risen to 7 percent. Using only the carrying amount based on historical cost reported on the balance sheet to analyze the company's financial position would most likely cause an analyst to:**

  A. overestimate Fairmont's economic liabilities

  B. underestimate Fairmont's economic liabilities

  C. underestimate Fairmont's interest coverage ratio

- **Answer**

  A is correct

  - When interest rate rise, bonds decline in value. Thus the carrying amount of the bonds being carried on the balance sheet is higher than the market value. The company could repurchase the bonds for less than the carrying amount, so the economic liabilities are overestimated. Because the bonds are issued at a fixed rate, there is no effect on interest coverage.

Derecognition of Debt

- **A firm may choose to redeem bonds before maturity**
  - Possible reasons
    - ✓Interest rates reduction
    - ✓Firm has generated surplus cash through operation
    - ✓Funds from the issuance on the equity market is available
  - A gain or loss is recognized in I/S

Derecognition of Debt

- **Example 18**

A firm reacquires $1 million face value bonds at 102% of par when the carrying value of the bond liability is $995,000

Answer:

Losses = $1,020,000 - $995,000 = $25,000 recognize in I/S

Under U.S. GAAP, any unamortized issuance costs must be written off and included in the gain or loss calculation

Debt Covenant

- **Debt covenants**
  - Debt covenants are restrictions imposed by the lender on the borrower to protect the lender's position.
  - Debt covenants can reduce default risk and thus reduce borrowing costs.
  - The restrictions can be in the form of affirmative covenants or negative covenants.
- With affirmative covenants, **the borrower promises to do certain things, such as:**
  - Make timely payments of principal and interest.
  - Maintain certain ratios (such as the current, debt-to-equity, and interest coverage ratios) in accordance with specified levels.
  - Maintain collateral, if any, in working order.
- With negative covenants, **the borrower promises to refrain from certain activities that might adversely affect its ability to repay the outstanding debt, such as:**
  - Increasing dividends or repurchasing shares.
  - Issuing more debt.
  - Engaging in mergers and acquisitions.

Framework for Lease

1. **Classification of leases under U.S. GAAP & IFRS***
2. **Lease accounting**
   - Lessee
   - Lessor
3. **Disclosure of lease***
4. **Solvency ratio**

Classification of leases

- **A** lease **is a contractual arrangement where by the** lessor **, the owner of the asset , allows the** lessee **to use the asset for a specified period of time *(lease term)* in return for periodic *lease payment.***
  - Two partied involved in leases
    - ✓Lessee： use the asset
    - ✓Lessor： owner of the asset
- **Two types of leases (Classification)**
  - Operating lease
    - ✓An operating lease is essentially a rental arrangement. No asset or liability is reported by the lessee and the periodic lease payments are simply recognized as rental expense in the income statement.
  - Finance lease / Capital lease (U.S.)
    - ✓A finance lease is, in substance, a purchase of an asset that is financed with debt. Accordingly, at the inception of the lease, the lessee will add equal amounts to both assets and liabilities on the balance sheet. Over the term of the lease, the lessee will recognize depreciation expense on the asset and interest expense on the liability.

Classification of leases – IFRS*

Finance lease	Operating lease
Transfers from lessor to lessee substantially all the risks and rewards incidental to ownership of an asset. No specific condition for finance lease, but use finance lease when meeting one of the following conditions: ① Title transfer ② Bargain purchase option ③ The lease term is for the major part of the economic life of the asset ④ At the inception of the lease the present value of the minimum lease payments amounts to at least substantially all of the fair value of the leased asset ⑤ A specialized nature	A lease other than a finance lease.

Classification of leases – U.S.GAAP*

Finance lease	Operating lease
A lease transaction can be classified as a Finance lease by lessee if meet at least one of the following criteria: ①The title to the leased asset is transferred to the lessee at the end of the lease period. ②A bargain purchase option exists. ③The lease period is at least 75% of the asset's economic life. ④The present value of the lease payments is equal to or greater than 90% of the fair value of the leased asset.	A lease not meeting any of those criteria is classified as an Operating lease

Accounting for lease - Lessee

	Finance Lease	Operating Lease
B/S-inception	Leased asset = Lease liability = PV of Minimal lease payment (MLP) •MLP = Future lease payment over lease term	No effect
B/S-periodic payment	Leased asset → Depreciation over lease term Lease liability → interest expense & principal repayment	
I/S-periodic payment	An interest expense is separated from the lease payment and recognized in the income statement.	Lease payment is recognized as a rental expense in I/S
Cash Flow	Principal repayment – CFF Interest expense - CFO	CFO

Example 19

- GF leases a machine for its own use for 4 years with annual payments of 1000 paid in arrears ; The appropriate interest rate on the lease is 10%.

  Calculate the impact of the lease on GF' balance sheet and income statement for each of the 4 years, including the immediate impact.

  Assuming GF depreciates all assets on SL basis.

Example 19

- B/S **is affected by** Finance lease only
- **At the inception of the lease**
  - Leased asset = lease liability =3169.8654=3170

  N=4, I/Y=10, PMT=1000, FV=0, CPT PV= -3169.8654= -3170
- **Over the lease term**
  - Leased asset → annual depreciation (SL) i.e. 3170 / 4years =792.5 p.a.
  - Lease liability → separate Interest expense & Lease payment

Calculation process

For the 1st year:

$$INT_1 = BV_0 \times r_m = 3170 \times 10\% = 317$$

$$PMT_1 = 1000$$

$$PRN_1 = PMT_1 - INT_1 = 1000 - 317 = 683$$

$$BV_1 = BV_0 - PRN_1 = 3170 - 683 = 2487$$

For the 2nd year:

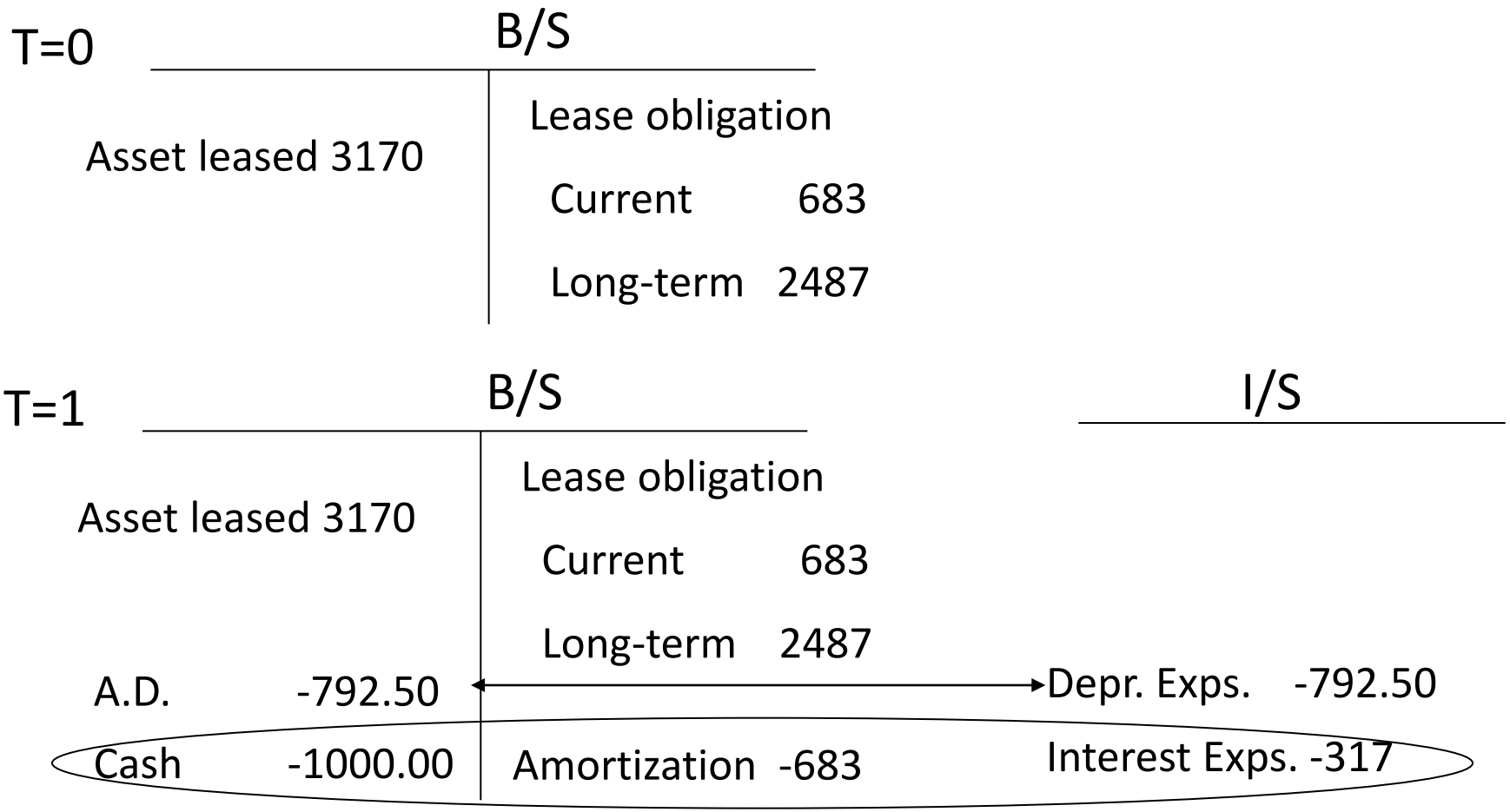
$$INT_2 = BV_1 \times r_m = 2487 \times 10\% = 248.7 \approx 249$$

$$PMT_2 = 1000$$

$$PRN_2 = PMT_2 - INT_2 = 1000 - 249 = 751$$

$$BV_2 = BV_1 - PRN_2 = 2487 - 751 = 1786$$

Accounting for finance lease of lessee



Interest Exps.=BV_0 × interest rate=3167 × 10%=317

Amortization=Payment-Interest Exps.=1000-317=683

Comparison between finance and operating lease

Capital lease			Operating lease
Depreciation expense	Interest expense	Total expense	Lease expense
792.50	317	1109.5	1000
792.50	249	1041.5	1000
792.50	174	966.5	1000
792.50	91	883.5	1000
3170	830.00 =4000-3170	4000	4000

Comparison of CF between finance and operating

	Operating lease	Finance lease		
Year	CFO	CFO	CFF	Total CF
1	1,000	317	683	1,000
2	1,000	249	751	1,000
3	1,000	174	826	1,000
4	1,000	91	910	1,000
Total	4,000			4,000
	Rental Stable p.a.	Interest expense Decreasing	Lease payment - interest expense Increasing	Rental Stable p.a.

Effect on Financial statements

		Finance lease	Operating lease
B/S	Assets	Higher	Reverse
	Liabilities	Higher	
I/S	EBIT	Higher	
	Net income in early years	Lower	
	Net income in later years	Higher	
	Total net income	Same	Same
CFS	CFO	Higher	Reverse
	CFF	Lower	
	Total CF	Same	Same

Effect on ratios

	Finance lease	Operating lease
Current ratio (↑Current liab)	Lower	Reverse
Working capital (↑Current liab)	Lower	
Asset turnover (↑ Asset)	Lower	
ROA (in early years) (↓Net income)	Lower	
ROE	Lower	
Debt/asset (↑ Liab ↑ Asset)	Higher	
Debt/equity(↑ Liab)	Higher	

Classification of lease - Lessor

Lessee		Lessor
•Operating lease	→	•Operating lease
•Finance lease	Two additional conditions are not satisfied →	•Operating lease
	Two additional conditions are satisfied →	•Capital lease **•If manufacturer, sales-type lease** **•If for financing, direct-financing lease**

- **Two conditions to be satisfied:**
  - The lessor has substantially completed performance
  - The collectivity of lease payments is predictable.

Classification of lease - Lessor

From the lessor's perspective

- **Under U.S. GAAP,** a capital lease is treated as either a *sales-type* lease or a *direct financing* lease.
  - ✓If the present value of the lease payments exceeds the carrying value of the asset, the lease is treated as a *sales-type lease*.
  - ✓If the present value of the lease payments is equal to the carrying value, the lease is treated as a *direct financing lease*.
- **Under IFRS,** does not distinguish between a sales-type lease and a direct financing lease.
  - ✓However, similar treatment to a sales-type lease is allowed under IFRS for finance leases originated by manufacturers or dealers. In this case, the present value of the lease payments likely exceeds the carrying value of the asset.

Sales type lease

- Sales-type lease
  - A sales-type lease is treated as if the lessor sold the asset for the present value of the lease payments and provided a loan to the buyer in the same amount.
  - Sales-type leases are typical when the lessor is a manufacturer or dealer because the cost (balance sheet value) of the leased asset is usually less than its fair value.
- **At the** inception of the lease
  - the lessor recognizes a sale equal to the present value of the lease payments
  - cost of goods sold equal to the carrying value of the asset
  - the difference between the sales price and cost of goods sold is gross profit.
- In the cash flow statement
  - the interest portion of the lease payment is reported as an inflow from operating activities, and the principal reduction is reported as an inflow from investing activities, just as with an amortizing loan.

Example 20 – Sales type lease

- **GF leases a machine to an oil company for 4 years with annual lease payments of 1,000 in arrears.** It cost GF $3,000 to produce the machine.
- **At the end of the lease, the lessor regains possession of the asset, which will be sold for scrap value of $600. The collectability of the lease payments is predictable, and there are no significant uncertainties about GF' unreimbursable costs. The implicit rate on the lease is 10%.**

PV of the lease payments	?
PV of salvage value	?
COGS	?
Profit for the sale	?
Net investment in lease	?

Example 20 – Sales type lease

- The PV of lease payment = 3170 (previous example) = FV of leased asset
- The PV of salvage value =600/1.1^4=410
- The Cost of goods sold = 3000 - 410 = 2590
- The profit on the sales = 3170 - 2590 = 580
- The Net investment in the lease = 3170+410 = 3580

Both use 10% as discount rate

I/S

CFO ↑

CFI ↓

Asset on the B/S

i.e. lease receivable

Example 20 – Sales-type lease

Year	Beginning	Interest income 10%	The receipt of lease payment from lessee	Net investment in lease
1	3580	358	-1000	2938
2	2938	294	-1000	2232
3	2232	223	-1000	1455
4	1455	146	-1000	600
Total		1020	-4000	

PV of future lease payment and salvage value at the end of year 1

= 3580*(1+10%)-1000

Salvage value

Direct financing lease

- **Direct financing lease**
  - In a direct financing lease, no gross profit is recognized by the lessor at the inception of the lease.
- **At the inception of the lease**
  - the lessor removes the asset from its balance sheet and creates a lease receivable in the same amount. As the lease payments are received, the principal portion of each payment reduces the lease receivable.
- **In the income statement**
  - the lessor recognizes interest income over the term of the lease. The interest portion of each lease payment is equal to the lease receivable at the beginning of the period multiplied by the interest rate.
- **In the cash flow statement**
  - the interest portion of the lease payment is reported as an inflow from operating activities and the principal reduction is reported as an inflow from investing activities.

Example 21 – Direct financing lease

- GF leases a machine to an oil company for 4 years with annual lease payments of 1000 in arrears . It cost GF $3000 to purchase the machine.
- At the end of the lease, the lessor regains possession of the asset .The collectability of the lease payments is predictable, and there are no significant uncertainties about GF' unreimbursable costs. The implicit rate on the lease is 10%.
- Net investment in the lease: IRR=12.589%, 12.6%

Year	Beginning	Interest income 12.6%	Receipt	Ending
1	3000	378	-1000	2378
2	2378	299	-1000	1677
3	1677	211	-1000	888
4	888	112	-1000	0
Total		1000	-4000	

Accounting for lease - Lessor

	Sales-type lease	Direct-financing lease
At inception-I/S	•Sales = PV of MLP (lease receivable) •**Discount rate = The interest rate implicit in the lease** •COGS = Cost of assets – PV of salvage •Profit = Sales – COGS	No profit is recognized.
At inception-B/S	Net investment in lease = PV of MLP + PV of salvage value	Net lease receivable = cost of assets
Periodic - I/S	Interest revenue = *implicit interest rate* * net lease receivable at the beginning of the period	
At inception-Cash Flow	No effect	
Periodic - Cash Flow	CFO – inflow CFI – inflow	

Example 22 – Sales-type lease without salvage

- **GF leases a machine to an oil company for 4 years with annual lease payments of 1,000 in arrears.** It cost GF $3,000 to produce the machine**.**
- **At the end of the lease, the lessor regains possession of the asset with zero salvage value. The collectability of the lease payments is predictable, and there are no significant uncertainties about GF' unreimbursable costs. The implicit rate on the lease is 10%.**

PV of the lease payments	?
PV of salvage value	?
COGS	?
Profit for the sale	?
Lease receivable	?

Example 22 – Sales-type lease without salvage

- The PV of lease payment = 3,170 (previous example) = FV of leased asset
- The PV of salvage value =0
- The Cost of goods sold = 3,000-0 = 3,000
- The profit on the sales = 3,170 – 3,000 = 170
- Lease receivable = 3,170 +0= 3,170

Both use 10% as discount rate

I/S

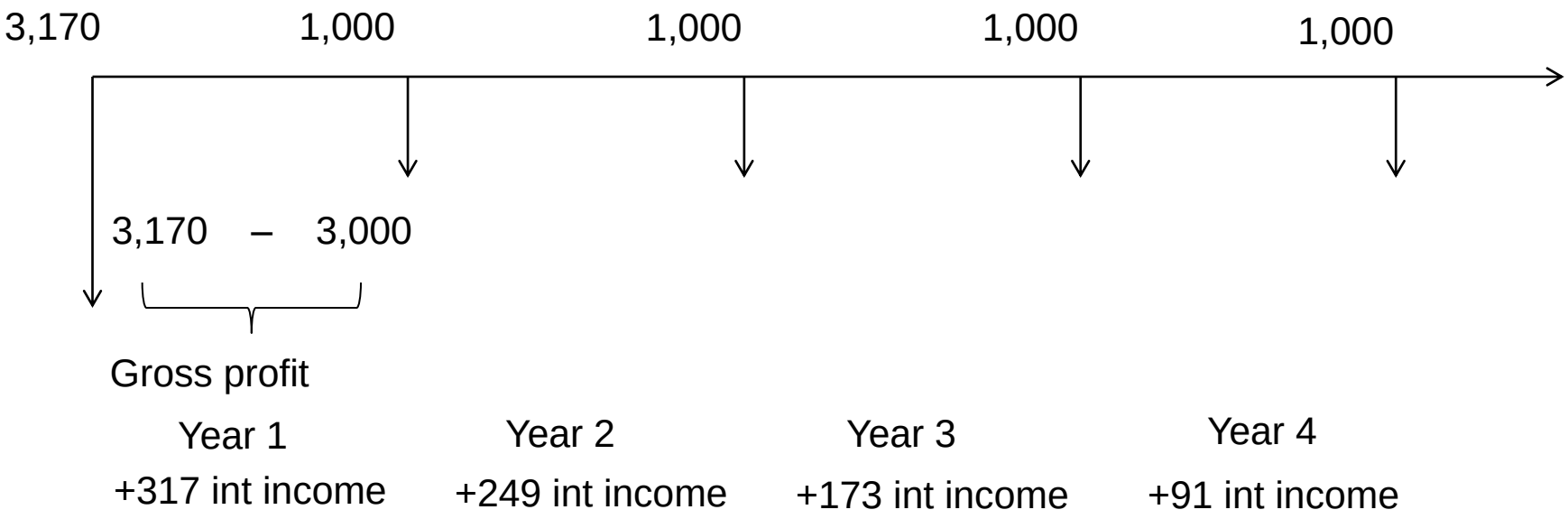
CFO ↑

CFI ↓

Asset on the B/S

i.e. lease receivable

Example 22 – Sales-type lease without salvage



- For sales-type lease
  - Only the first year recognized a 170 gross profit
  - The following years only have interest income
  - So, total income is 1000, which consists of 170 gross profit and 830 interest income, without salvage value …

Example 22 – Sales-type lease without salvage

Year	Beginning	Lease Payment Received	Interest Income 10%	Reduction of Lease Receivable	[illegible] Receivable
1	3,170	1,000	317	683	2,487
2	2,487	1,000	249	751	1,736
3	1,736	1,000	173	827	909
4	909	1,000	91	909	0
Total		4,000	830		

Reduction of Lease Receivable= **1000-317**

PV of future lease payment and salvage value at the end of year 1

= 3,170-(1000-3170*10%)

Salvage value

Example 23 – Direct financing lease

- The GF leases a machine to an oil company for 4 years with annual lease payments of $1,000 in arrears. The salvage value is zero. It cost GF $3,170 to purchase the machine.
- At the end of the lease, the lessor regains possession of the asset .The collectability of the lease payments is predictable, and there are no significant uncertainties about GF' unreimbursable costs. The implicit rate on the lease is 10%.

PV of the lease payments	?
PV of salvage value	?
COGS	?
Profit for the sale	?
Lease receivable	?

Example 23 – Direct financing lease

- The PV of lease payment = 3,170 (previous example) = FV of leased asset
- The PV of salvage value =0
- The Cost of goods sold = 3,170
- The profit on the sales = 3,170 – 3,170 = 0 (Present value of lease payment is equal to the cost of goods sold, the lease is treated as direct financing lease)
- The lease receivable = 3,170+0=3,170

Both use 10% as discount rate

Asset on the B/S

i.e. lease receivable

Example 23 – Direct financing lease

- Lease receivable: IRR=10%

Year	Beginning	Lease Payment Received	Interest Income 10%	Reduction of Lease Receivable	Lease Receivable
1	3,170	1,000	317	683	2,487
2	2,487	1,000	249	751	1,736
3	1,736	1,000	173	827	909
4	909	1,000	91	909	0
Total		4,000	830		

Reduction of Lease Receivable= **1000-317**

PV of future lease payment and salvage value at the end of year 1

= 3,170-(1000-3170*10%)

Salvage value

Accounting for lease - Lessor

	Sales-type lease	Direct-financing lease
At inception-I/S	•Sales = PV of MLP (lease receivable) •**Discount rate** •**= The interest rate implicit in the lease** •COGS = Cost of assets – PV of salvage •Profit = Sales – COGS	No profit is recognized.
At inception-B/S	Lease receivable = PV of MLP + PV of salvage value	Lease receivable = cost of assets
Periodic - I/S	Interest revenue = *r* * Lease receivable at the beginning of the period	
At inception-Cash Flow	No effect	
Periodic - Cash Flow	CFO – inflow CFI – inflow	

Off-balance sheet financing

- **Following is information for ABC Corp. in 20X1:**
  - Total assets $40 million
  - Total debt $20 million
  - Capital lease liability $3 million

	Capital Lease Payments	*Operating Lease Payments*
20X2	$2 million	$1.5 million
20X3	$2 million	$1.5 million
20X4	$2 million	$1.5 million
20X5	$2 million	$1.5 million
20X6	$2 million	$1.5 million
Beyond 20X6	$8 million	$4 million

- **Present value of capital leases: $7.184 million**
- **Estimate the present value of ABC's operating leases?**

Off-Balance Sheet Financing

- ***Method 1: Assume operating leases have the same ratio of PV to payments as the firm's capital leases.***
  - A total of $18 million in capital lease payments and $11.5 million in operating lease payments are due in the future.
  - The ratio of the PV of ABC capital leases to its total future lease payments is $7.184 million / $18 million = 0.399.
  - Using this ratio, we can estimate the PV of their operating leases as 0.399 x $11.5 million = $4.589 million.

Off-Balance Sheet Financing

- ***Method 2: Estimate discount rate for capital leases and apply it to operating leases.***
  - To calculate a single discount rate that would produce the reported PV of capital leases, we must make an assumption about the timing of capital lease payments beyond 20X6. The annual payments, together with the reported PV, can be used to estimate a discount rate to use when calculating the PV of the operating lease payments.
  - Some alternatives are as follows: all paid at the end of Year 6, or payments at the average of the prior five years until the obligation for future payments beyond 20X6 is met, spread evenly over some specific number of years.
  - **All paid at the end of Year 6 ($8 million in Year 6)**

    CF_0= -7.184; C_{01} = 2;F_{01} = 5; C_{02} = 8, F_{02}=1; CPT IRR = 26.43%.
  - Payments **at the average of the prior five years**($2 million in Years 6 to 9):

    CF_0-= -7.184; C_{01} = 2; F_{01} = 9; CPT IRR =23.75%.
  - Spread **evenly over five years** ($1.6 million in Years 6 to 10):

    CF_0 = -7.184; C_{01} = 2; F_{01} = 5; C_{02} = 1.6; F_{02} = 5; CPT IRR = 23.08%.

Off-Balance Sheet Financing

- Note that the further in the future we assume the payments are made, the lower their discount rate given the PV.
- If we choose to assume that capital lease payments beyond 20X6 are spread evenly over five years ($1.6 million per year), we will use the discount rate 23.08%.
- Making the same assumption about lease payments beyond 20X6 for the operating leases ($800,000 per year for five years), we can calculate the PV of these payments, and, thus, the operating lease liability:

  I/Y = 23; CF_0 = 0; C_{01} = 1,500; F_{01} = 5; C_{02} = 800; F_{02} = 5; CPT NPV = 5,001.85

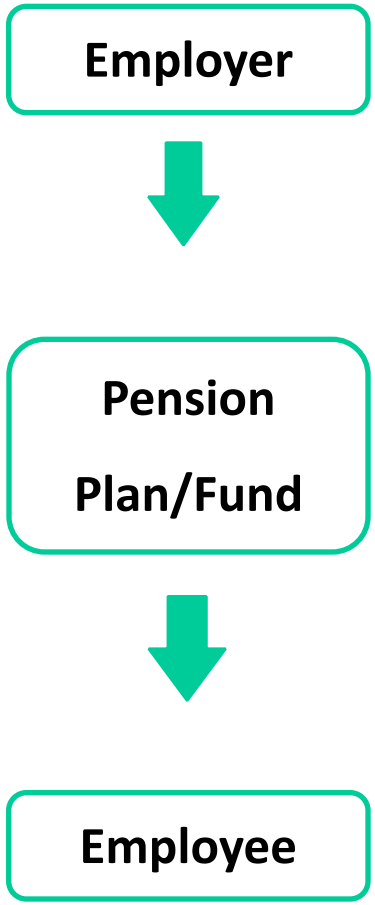
- This amount, $5.0 million, should be added to the firm's liabilities and assets (equity need not be adjusted) to better reflect the use of off-balance-sheet financing and to calculate solvency ratios such as debt-to-equity and debt-to-assets.

Framework for Pension plans*

- **A** pension **is a form of deferred compensation earned over time through employee service. The most common pension arrangements are defined contribution plans and defined benefit plans.**
  - Defined contribution plan
    - ✓A defined contribution plan is a retirement plan in which the firm contributes a sum each period to the employee's retirement account.
    - ✓The firm's contribution can be based on any number of factors, including years of service, the employee's age, compensation, profitability, or even a percentage of the employee's contribution.
  - Defined benefit plan
    - ✓In a defined benefit plan, the firm promises to make periodic payments to employees after retirement.
    - ✓The benefit is usually based on the employee's years of service and the employee's compensation at, or near, retirement.

Pension plans*

Defined contribution plans	Defined benefit plan
The employee assumes all the investment risk	The employer assumes all the investment risk



Employer paid the **contribution** during the employee service period

Employees receive **benefit** after retirement

Defined benefit plan*

IFRS & U.S.GAAP			
B/S	$	I/S	$
PV of obligation	(X)	Interest cost	(X)
FV of plan asset	X	Current service cost	(X)
Overfunding/(Underfunding)	X/(X)	Expected return	X
		Actuarial gain / (Loss)	X/(X)
		Total	X/(X)

Alternative treatment under IFRS			
B/S	$	I/S	$
PV of obligation	(X)	Interest cost	(X)
FV of plan asset	X	Current service cost	(X)
Overfunding/(Underfunding)	X/(X)	Expected return	X
Unrecognized actuarial (gain) / Loss	(X)/X	Total	X/(X)
Net asset /(Liability)	X/(X)		

Defined benefit plan*

- **3. Pehben corporation has a defined benefit pension plan. At 31 December, its pension obligation is $10 million , pension assets are $9 million and actuarial loss of $0.4 million. If Penben chooses to report under a method consistent with both IFRS and U.S. GAAP , the reporting on the balance sheet would be closest to which of the following?**

  A. $10 million is shown as a liability and $9 million appears as an asset

  B. $1 million is shown as a net pension obligation.

  C. $ 0.6 million is shown as a net pension obligation

- **Answer：**

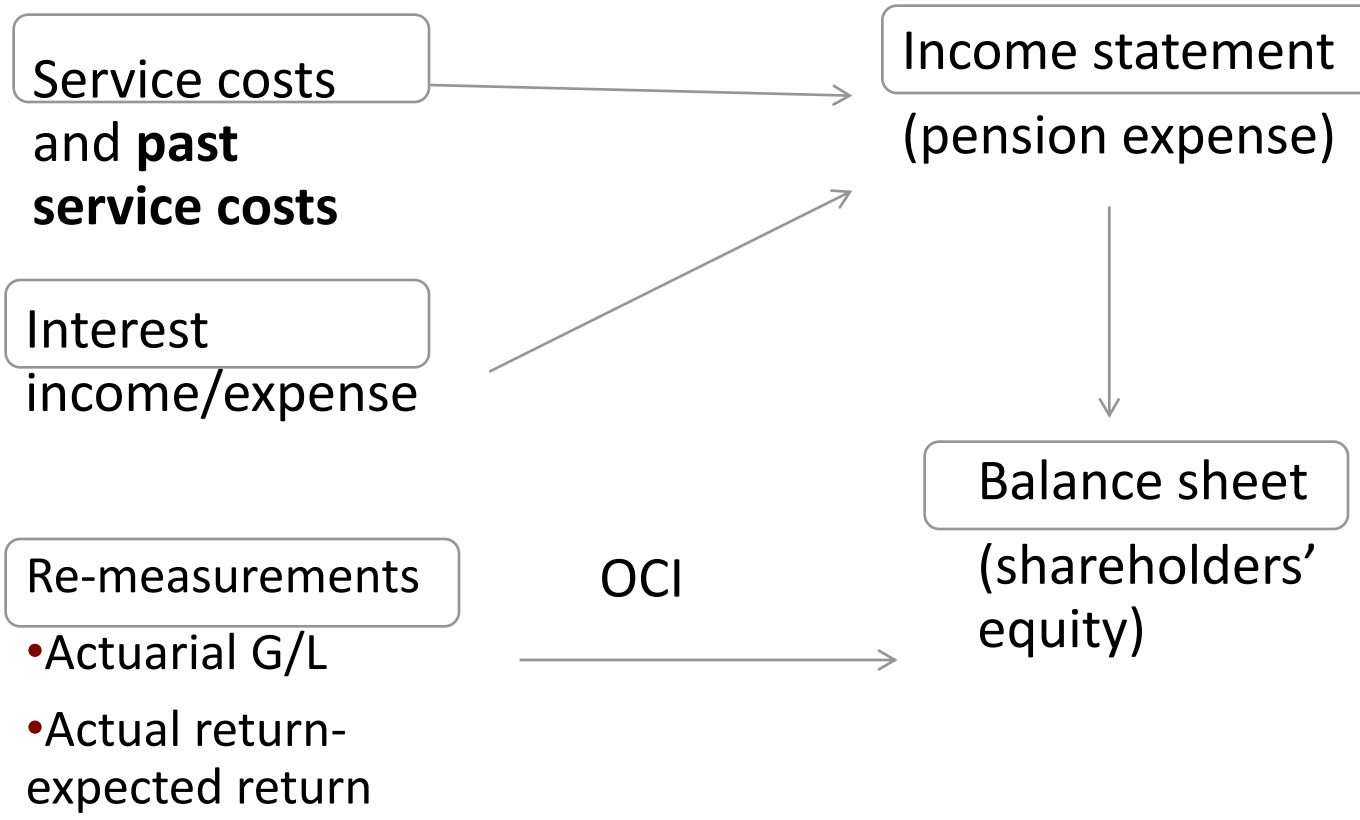
  B is correct.

  - Under both IFRS and U.S. GAAP, a company can choose to report net pension obligation or asset.

Defined benefit plan*

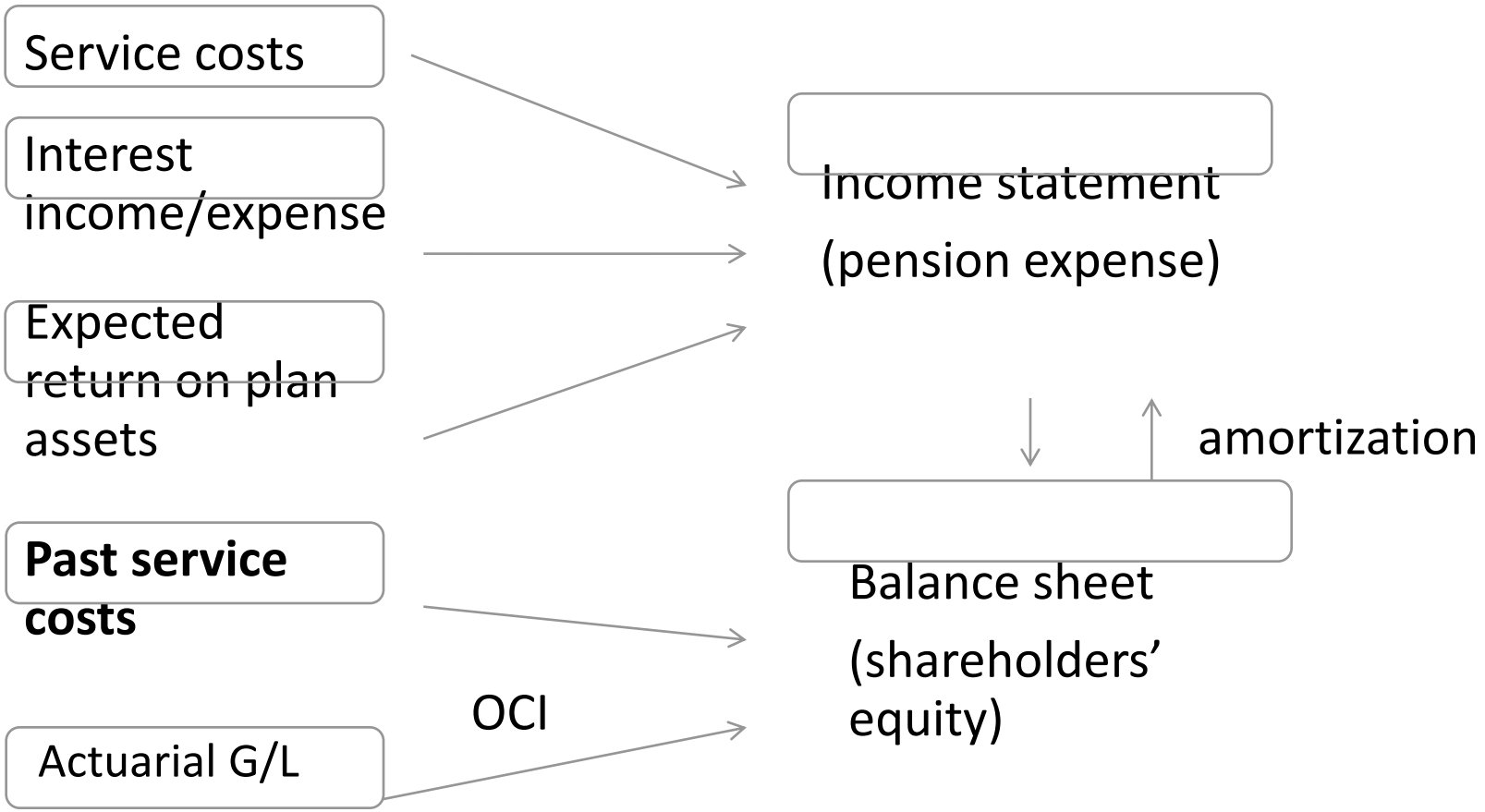
➢ Components of the change in net pension asset or liability

- IFRS reporting



Defined benefit plan*

- U.S.GAAP reporting



F.R.A

- **SS7**
  - R22: Financial Statement Analysis: An Introduction
  - R23: Financial Reporting Mechanics
  - R24: Financial Reporting Standards
- **SS8**
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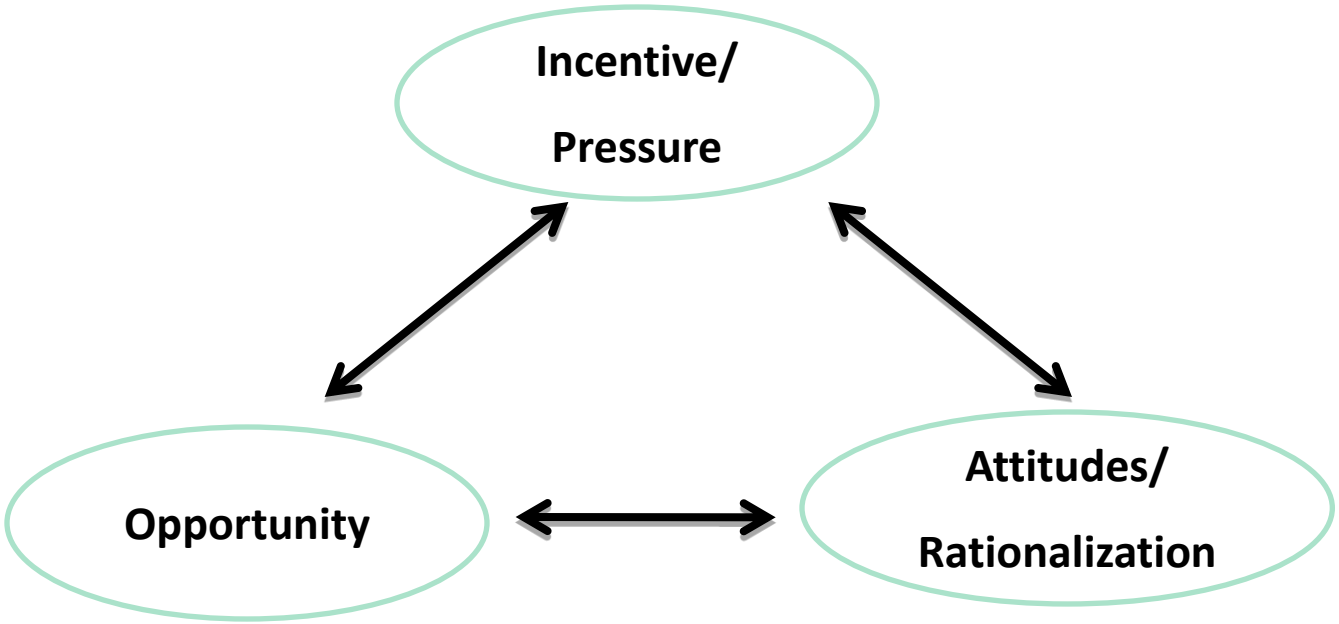
  - R31: Income Taxes
  - R32: Long-Term Liabilities and Leases
- SS10
  - R33: Financial Reporting Quality: Red Flags and Accounting Warning Signs
  - R34: Accounting Shenanigans on the Cash Flow Statement
  - R35: Financial Statement Analysis: Applications

Framework

1. **Financial reporting quality**
   - Manipulation → Low quality
   - Fraud → No quality
2. **Warning signs for low quality earnings**
   - General methods for detecting

Fraud Triangle

Statement on Auditing Standards No. 99, *Consideration of Fraud in a Financial Statement Audit*



Incentives/Pressures

- High degree of competition accompanied by declining margins
- High vulnerability to rapid changes, (eg, technology).
- Significant declines in customer demand and increasing business failures in either the industry or overall economy.
- Need to obtain additional debt or equity financing to stay competitive—including financing of major research and development or capital expenditures.
- Marginal ability to meet exchange listing requirements or debt repayment or other debt covenant requirements.
- Significant financial interests in the entity.
- Personal guarantees of debts of the entity.
- Excessive pressure on management or operating personnel to meet financial targets set up by the board of directors or management.

Opportunities

- Significant related-party transactions not in the ordinary course of business or with related entities not audited or audited by another firm.
- Assets, liabilities, revenues, or expenses based on significant estimates that involve subjective judgments or uncertainties that are difficult to corroborate.
- Domination of management by a single person or small group (in a non-owner-managed business) without compensating controls.
- Ineffective board of directors or audit committee oversight over the financial reporting process and internal control.
- High turnover of senior management, counsel, or board members.
- Inadequate monitoring of controls.
- Ineffective accounting and information systems.

Attitudes/Rationalizations

- Nonfinancial management's excessive participation in or preoccupation with the selection of accounting principles.
- Excessive interest by management in maintaining or increasing the entity's stock price or earnings trend.
- Known history of violations of securities laws or other laws and regulations or claims against the entity.
- A practice by management of committing to analysts and related parties to achieve aggressive or unrealistic forecasts.
- Management failing to correct known reportable conditions on a timely basis.
- Frequent disputes with the current or predecessor auditor on accounting, auditing, or reporting matters.
- Unreasonable demands on the auditor.

Motivation for manipulation

- **Firms are motivated to manage**
  - Earnings / Net income

Overstate NI	Understate NI
• Meet earnings expectation • Remain in compliance with debt covenants • Receive higher incentive compensation	• Obtain trade relief • Negotiate favorable repayment term from creditors • Negotiate favorable labor union contracts

  - Balance sheet
    - ✓ Overstating Assets or understating Liabilities to appear *more solvent*

      e.g. Lower D/E ratio

    - ✓ Understating Assets or overstating Liabilities to *enhance its performance ratios*

      e.g. Higher ROA, ROE, Asset turnover ratio

Motivation for manipulation

- **Manipulation → A low quality earnings**
  - Selecting acceptable accounting principles that misrepresent the economics of transaction

    e.g. Using inappropriate depreciation method to enhance NI
  - Using aggressive or unrealistic estimate& assumption

    e.g. Lengthening the lives of depreciable assets or increasing the residual value
  - Structuring transactions to achieve a desired outcome

    e.g. Structuring the terms of lease to avoid capital lease recognition
  - Exploiting the intent of an accounting principle

    e.g. Applying a narrow rule to a board range of transaction

    (Unconsolidated special purpose entities SPE)

Level II

Warning signs for low quality earnings

- **Overstate NI**
  - Timing
    - ✓ Aggressive revenue recognition
    - ✓ Delaying expense recognition

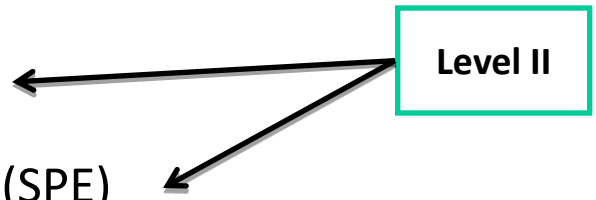
    Different growth rates of CFO & Earnings
  - Boosting revenue
    - ✓ Abnormal sales growth compared to peers
    - ✓ Reclassify non operating income and nonrecurring gains as revenue
  - Hiding expense
    - ✓ Abnormal inventory growth as compared to sales growth
    - ✓ LIFO liquidation
    - ✓ Classify certain expenses as extraordinary or non recurring
    - ✓ Extending the useful life of long – lived assets
    - ✓ Aggressive pension assumptions

    Abnormal GP margin & OP margin

    Year – end surprise

Warning signs for low quality earnings

- **Understate Liabilities**
  - Abnormal use of operating lease by lessee
  - Other off – B/S financing arrangement
  - Equity method investment
  - Off – B/S special purpose entities (SPE)



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➢SS10

- ➢R33: Financial Reporting Quality: Red Flags and Accounting Warning Signs
- ➢R34: Accounting Shenanigans on the Cash Flow Statement
- ➢R35: Financial Statement Analysis: Applications

Manipulation of Cash flows

- **Management may manipulate cash flows to inflate sustainable CFO**
  - Misclassification
    - ✓ Classifying CFF as CFO and vice versa
  - Timing of cash flows

Manipulation of Cash flows

- **Stretching Accounting payable:**
  - Delay payment to suppliers → CFO↑
- **Financing Accounts payable:**
  - Manage timing of CFO
- **Securitizing Accounts receivable:**
  - Sale A/R → CFO↑
- **Repurchasing stock to offset dilution:**
  - Option exercise → CFF↑
  - Repurchase to offset dilution → CFF ↓
  - There is a tax benefit when options are exercised, which ↑ CFO;
  - and employee stock options are part of compensation, the outflow of CFF should be reclassified as CFO for analysis purpose.

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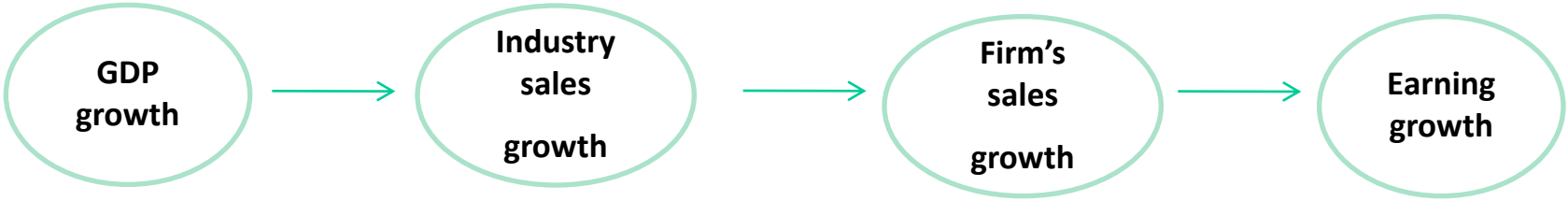
Important to understand business strategy

- **Premium products** are usually sold at higher gross margins than less differentiated commodity-like products, so we should expect cost of goods sold to be a higher proportion of sales for the latter.
- We might also expect the company with cutting-edge features and high quality to spend **a higher proportion of sales on research and development**, which may be quite minimal for a firm purchasing improved components from suppliers rather than developing new features and capabilities in-house.
- **The ratio of gross profits to operating profits will be larger** for a firm that spends highly on research and development or on advertising.

Financial statement analysis in assessing credit quality

- **Ratio analysis for evaluation of past financial performance Forecasting**
  - A company's future income and cash flow can be projected by forecasting future sales



- **Credit analysis uses a firm's financial statement to asset its credit quality**
  - Character
  - Collateral
  - Capacity to pay
- **Types of items considered can be separated into four general categories:**
  - Scale and diversification
  - Operational efficiency (operating ROA, operating margins, and EBITDA margins)
  - Margin stability
  - Leverage

Adjustments for comparison

- **Companies must** adjust the financial statements **for comparability when they use different accounting methods or estimates**
  - ✓Different accounting methods between companies
  - ✓Different accounting standards crossing countries

Appropriate adjustments to facilitate comparison

- Investments in Securities.
  - differences in classifications
  - Under IFRS, unrealized gains and losses on available-for-sale debt securities that result from exchange rate fluctuations are recorded on the income statement. Because they are not recorded as income under U.S. GAAP, an analyst should subtract (add) this component of unrealized gains (losses) from the net income of the IFRS firm to improve comparability.
- Inventory Accounting Differences
  - The LIFO reserve, which all LIFO firms must report, can be used to adjust LIFO cost of goods and inventory to their FIFO-equivalent values.

Appropriate adjustments to facilitate comparison

- Differences in Depreciation Methods and Estimates
  - Over an asset's life, differences between depreciation methods, estimates of useful lives, and estimates of salvage values used by otherwise comparable firms can lead to significant differences in reported income and balance sheet asset values.
  - Note as well that upward revaluation of fixed asset values is permitted under IFRS but not under U.S. GAAP.
- Off-Balance-Sheet Financing
  - Debt ratios should include liabilities for both capital (finance) leases and operating leases.

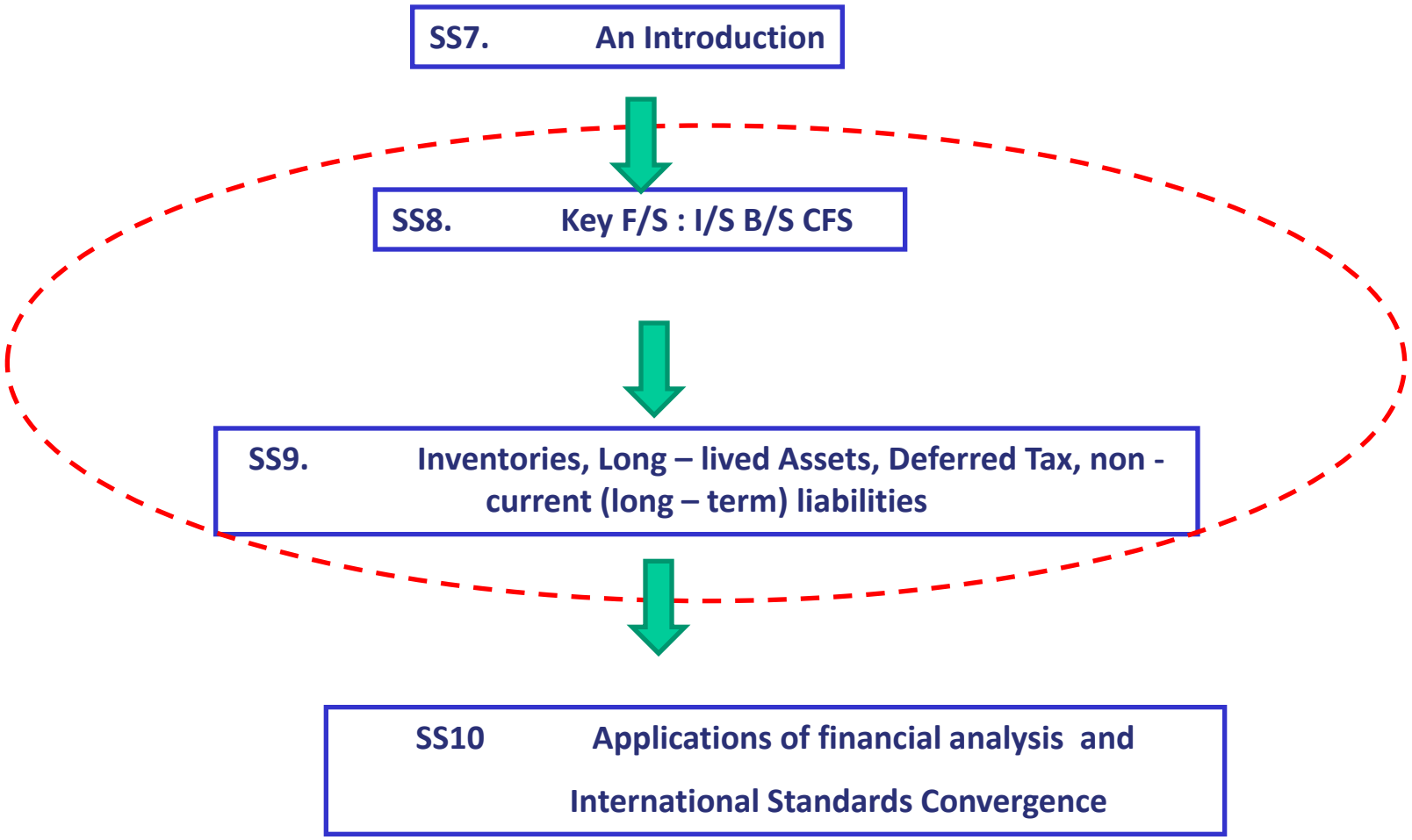
Appropriate adjustments to facilitate comparison

- Goodwill
  - First, goodwill should be subtracted from assets when calculating financial ratios.
  - Second, any income statement expense from impairment of goodwill in the current period should be reversed, increasing reported net income.
- Other Intangible Assets
  - Additional adjustment may be required for IFRS firms that revalue intangible assets upward, which is not permitted under U.S. GAAP.
  - Analysts should also note that a firm's pre-and post-acquisition financial statements may lack comparability when the acquisition method is used. The acquisition method combines fair value estimates of identifiable assets with historical asset costs on the balance sheet and adds the earnings of the purchased firm with no restatement of prior results.

Appropriate adjustments to facilitate comparison

- Investments in Securities.
- Inventory Accounting Differences
- Differences in Depreciation Methods and Estimates
- Off-Balance-Sheet Financing
- Goodwill
- Other Intangible Assets

FSA structure



It’s not the end but just beginning.

Always believe that good things are possible, and remember that mistakes can be lessons that lead to discoveries. Take your fear and transform it into trust; learn to rise above anxiety and doubt. Turn your "worry hours" into "productive hours". Take the energy that you have wasted and direct it toward every worthwhile effort that you can be involved in. You will see beautiful things happen when you allow yourself to experience the joys of life. You will find happiness when you adopt positive thinking into your daily routine and make it an important part of your world.

请坚信，美好的降临并非不可能，失误也许是成功的前奏。将惶恐化作信任，学会超越担忧和疑虑。让“诚惶诚恐”的时光变得“富有成效”。不要挥霍浪费精力，将它投到有意义的事情中去。当你下意识品尝生命的欢愉时，美好就会出现。当你积极地看待生活，并以此作为你的日常准则时，你就会找到快乐的真谛。