Financial Reporting and Analysis

2018年6月CFA一级培训

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- **Study session 7**
  - **Los 28. Inventories**
  - Los 29. Long-lived Assets
  - Los 30. Income Taxes
  - Los 31. Non-current Liabilities

Recognition

- **Product costs and period costs**

Product costs	Period costs
• Purchase cost —discounts and rebates	• Abnormal waste of materials, labor, or overhead
• Conversion costs including labor and production overhead	• Storage costs
• Other costs necessary to bring the inventory to its present location and condition	• Administrative overhead
	• Selling costs

Example:

A factory produced 10,000 finished tables and scrapped 100 tables which was attributable to **abnormal waste** and had a total production cost of 30,000.

For the finished tables:

- Raw material costs 2,000,000
- Direct labor conversion cost 4,000,000
- Production overhead costs 4,000,000
- Freight delivery charges on raw materials 100,000
- Storing cost for finished tables 50,000

1. What costs should be **included in inventory**?
2. What costs should be **expensed**?

Solution:

1. Total inventory cost 1,100,000

- Raw material costs 2,000,000
- Direct labor conversion cost 4,000,000
- Production overhead costs 4,000,000
- Freight delivery charges on raw materials 100,000.

2. Expensed cost 80,000

- Storing cost for finished tables 50,000
- **abnormal waste 30,000**

Valuation methods

- **IFRS V.S U.S. GAAP**

	IFRS	U.S. GAAP
Specific identification	√	√
Weighted average cost	√	√
First-in, first-out (FIFO)	√	√
Last-in, first-out (LIFO)	×	√

Example from notebook P93

Using the inventory data in the table below to calculate the cost of goods sold and ending inventory under each of the three methods.

Inventory data

- January 1(beginning inventory) 2 units@2=$4
- January 7 purchase 3 units@3=$9
- January 19 purchase 5 units@5=$25
- Cost of goods available 10 units=$38
- Units sold during January 7 units

Solution:

- FIFO

  Cost of goods sold=2*2+3*3+2*5=23; ending inventory=3*5=15.

- LIFO

  Cost of goods sold=5*5+2*3=31; ending inventory=2*2+1*3=7.

- Weighted average

  Average unit cost=38/10=3.8; Cost of goods sold=7*3.8=26.6; ending inventory=3*3.8=11.4.

B/S		
	LIFO	FIFO
Inventory	Lower	Higher
Current Assets	Lower	Higher
Quick ratio	No change	No change
Current ratio	Lower	Higher
Inventory turnover	Higher	Lower
Total assets	Lower	Higher
Total asset turnover	Higher	Lower
Debt-to-assets	Higher	Lower
Equity	Lower	Higher
Debt-to-equity	Higher	Lower

I/S		
	LIFO	FIFO
COGS	Higher	Lower
Operating margin	Lower	Higher
Tax	Lower	Higher
Net Income	Lower	Higher
Net margin	Lower	Higher
ROA,ROE<1	Lower	Higher

- **Perpetual and Periodic Inventory Systems**
  - **Perpetual inventory system**
    - Inventory values and COGS are *updated continuously*.
    - Inventory purchased and sold is recorded directly in inventory when the transactions occur.
    - No purchase account.
  - **Periodic inventory system**
    - inventory values and COGS are determined *at the end of the accounting period.*

$$Inventory_{Beginning}+Purchase-COGS=Inventory_{Ending}$$

  - **FIFO and specific identification method**
    - Perpetual inventory system= Periodic inventory system
  - **LIFO and weighted average cost method**
    - Perpetual inventory system≠ Periodic inventory system

Example:

· 1.1 Current inventory 10*$5=50

· 1.10 Purchase 20*$8=160

· 1.20 Sale 25*$9=225

· 1.30 Purchase 30*$10=300

Calculate COGS and ending inventory *under LIFO and FIFO* using perpetual and periodic inventory systems.

Solution:

· Perpetual

LIFO COGS= 20*$8+5*$5=185

EI=5*$5+30*$10=325

· Periodic

LIFO COGS=25*$10=250

EI=50+160+5*$10=260.

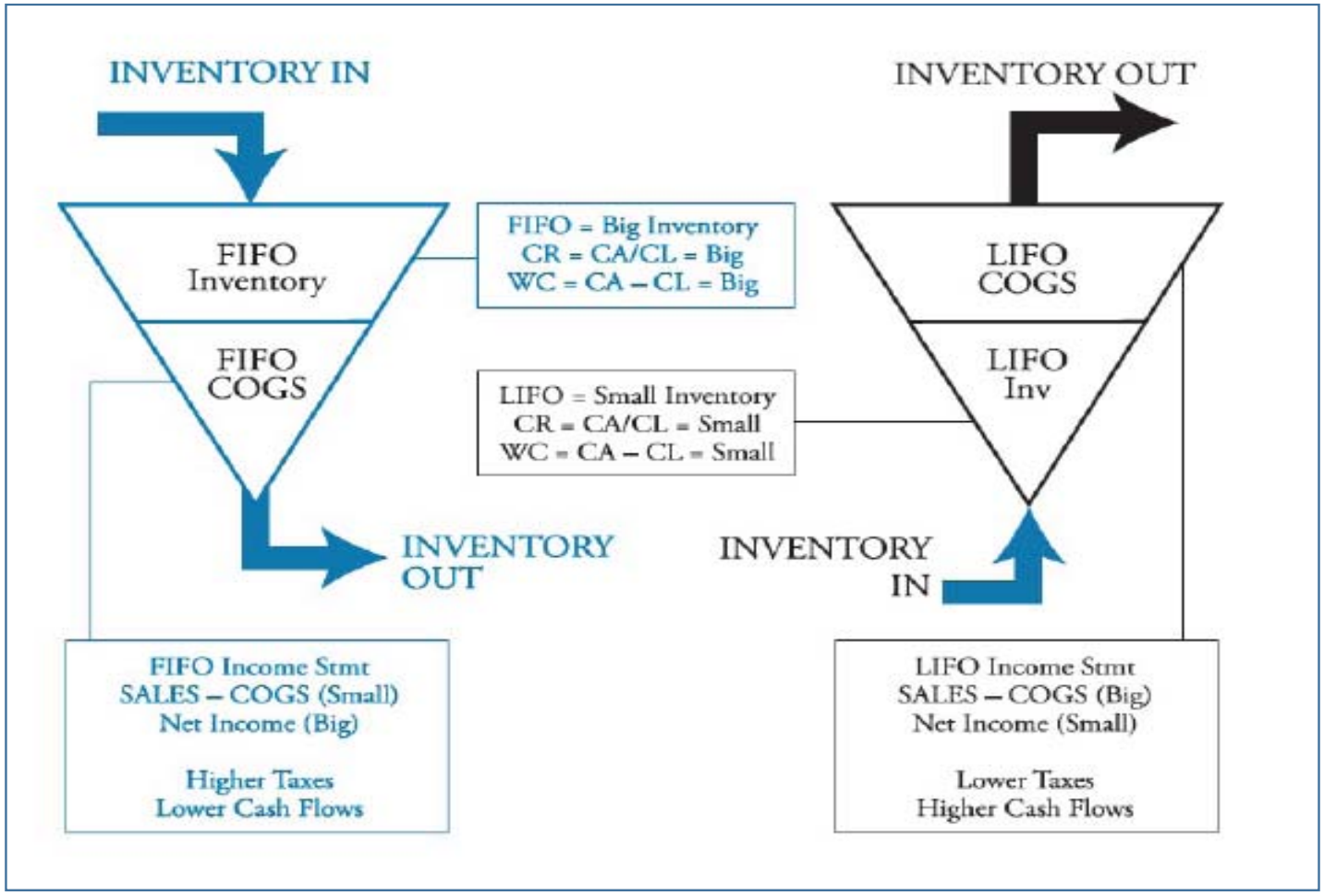
- Inflation and deflation
  - **Inflation and stable or increasing inventory levels**

	FIFO	LIFO
Cost of sales	Lower	Higher
Ending inventory	Higher	Lower
Gross profit	Higher	Lower

  - **Deflation and stable or increasing inventory quantities**

	FIFO	LIFO
Cost of sales	Higher	Lower
Ending inventory	Lower	Higher
Gross profit	Lower	Higher

Graph


INVENTORY IN
INVENTORY OUT
FIFO Inventory
FIFO COGS
LIFO COGS
LIFO Inv
FIFO = Big Inventory
CR = CA/CL = Big
WC = CA – CL = Big
LIFO = Small Inventory
CR = CA/CL = Small
WC = CA – CL = Small
INVENTORY OUT
INVENTORY IN
FIFO Income Stmt
SALES – COGS (Small)
Net Income (Big)
Higher Taxes
Lower Cash Flows
LIFO Income Stmt
SALES – COGS (Big)
Net Income (Small)
Lower Taxes
Higher Cash Flows

LIFO

- **LIFO Reserve**

LIFO reserve= FIFO Inventory-LIFO Inventory

FIFO COGS= LIFO COGS- (ending LIFO reserve – beginning LIFO reserve)

- For companies using the LIFO method, U.S. GAAP **requires disclosure the amount of LIFO reserve** in the footnotes.
- LIFO reserve is used to compare companies using LIFO with companies not using LIFO.

Example from notebook P261

Witz Company, which uses LIFO, reported end-of-year *inventory balances of 500 in 2015 and 700 in 2016*.

The LIFO reserve was 200 for 2015 and 300 for 2016. COGS during 2016 was 3,000. convert 2016 ending inventory and COGS to a FIFO basis.

Solution:

- Inventory

  $Inv_F = Inv_L + LIFO\ reserve = 700 + 300 = 1{,}000$.

- COGS

  $COGS_F = COGS_L - (ending\ LIFO\ reserve - beginning\ LIFO\ reserve)$

  $= 3000 - (300 - 200)$

  $= 2{,}900$.

- **LIFO Liquidation** 吃老本
  - When Price↑， Inventory ↑, carrying value of FIFO＞Carrying Value of LIFO
  - **When sold > produced**, ending inventory＜beginning Inv, the firm experiences a LIFO liquidation.
  - **LIFO liquidation→operating margins ↑ and income taxes ↑** → Decreased cash expenses (from not producing inventory) → **CFO ↑**
  - Management could use a LIFO liquidation (draw down inventory) to artificially inflate current period earnings.
  - Increases in profit margins from LIFO liquidation are **not sustainable.**
  - Analysts must look to the LIFO reserve disclosures in the footnotes to see if the LIFO reserve has decreased over the period.

Example:

1.1 Inventory 300*$10=3,000

A strike, no production.

3.1 Sell 200*$20=4,000

If no strike, the firm can produce 200*$15=3000 in FEB

Calculate the gross profit with and without a strike.

Solution:

- With a strike:

  gross profit= 200*$20-200*$10=2000.

- Without a strike:

  gross profit= 200*$20-200*$15=1000.

Example from notebook P263

At the beginning of 2018, Big 4 Manufacturing Company had 560 units of inventory as follows:

Year purchased	Number of units	Cost per unit	Total cost
2014	120	10	1,200
2015	140	11	1,540
2016	140	12	1,680
2017	160	13	2,080
Total	560		6,500

Big 4 reports inventory under ***LIFO***. Due to a strike, no units were produced during 20X8. During 20X8, Big **4 sold 440 units**. In the absence of the strike, Big 4 would have had a cost of $14 for each unit produced.

Compute the extra profit that resulted from the inventory liquidation.

Solution:

- Because of the LIFO liquidation, actual COGS was $5,300 as follows:

  COGS (Actual) =6500+0-1200=5300

- Had Big 4 replaced the 440 units sold, COGS would have been $6,160 as follows:

  COGS (If replaced)=6500+14*440-6500=6160

- Due to the LIFO liquidation, COGS was lower by $860 ($6,160 – $5,300); thus, pretax profit was higher by $860. The higher profit is **unsustainable** because Big 4 will eventually run out of inventory.

Inventory Adjustment

- **IFRS V.S U.S. GAAP**

	IFRS	U.S. GAAP
Valuation	Min(cost, net realizable value) • net realizable value =Sales-selling cost	Min(cost, market) • Replacement cost∈(NRV-NPM,NRV)
Reverse	√	×
Written-up	×	×
	Exception: commodity-like products大豆等农产品，有活跃的期货市场，按fair value计量。	

Example from curriculum P597

Acme Enterprises, a hypothetical company, manufactures computers and prepares its financial statements in accordance with IFRS. In 2008, the cost of ending inventory was 5.2 million but its ***net realisable value was 4.9 million.*** The current ***replacement cost of the inventory is 4.7 million***. **This figure exceeds the net reasliable value less a normal profit margin.** In 2009, the net realisable value of Acme's inventory was 0.5 million greater than the carrying amount.

1. What was the effect of the write-down on Acme's 2008 financial statements? What was the effect of the recovery on Acme's 2009 financial statement?
2. Under US GAAP, if Acme used the LIFO method, what would be the effects of the write-down on Acme's 2008 financial statements and of the recovery on Acme's 2009 financial statements?
3. What would be the effect of the recovery on Acme's 2009 financial statement if Acme's inventory were **agricultural products** instead of computers?

Solution to 1:

IFRS

- 2008, Min (carrying value, NRV)=min (5.2,4.9)=4.9, 5.2-4.9=0.3 loss is recognized in income statement.
- 2009, increase the carrying amount of its inventory and reduce the cost of sales by 0.3 million.

Solution to 2:

U.S.GAAP

- Acme would write its inventory down to 4.7 million. 5.2-4.7=0.5 loss is recognized in income statement.
- Acme would not reverse the write-down.

Solution to 3:

- If Acme's inventory were agricultural products instead of computers, inventory would be measured at net realisable value and Acme would increase inventory by and record a gain of 0.5 million for 2009.

Example

Zoom, Inc, sells digital camera. Per-unit cost information pertaining to Zoom's inventory is as follows:

- Original cost 210
- Estimated selling price 225
- Estimated selling costs 22
- **Net realizable value** 203
- **Replacement cost** 197
- Normal profit margin 12

What are the pre-unit carrying values of Zoom's inventory under IFRS and under U.S.GAAP?

Solution:

- **IFRS**

  Min(cost, net realiable value)=min (210,203)=203, 210-203=7 loss is recognized in income statement.

- **U.S.GAAP**

  Min(cost, market)

  Replacement cost∈(NRV-NPM,NRV) ∈(203-12,203)=(191,203)

  Min(cost, market)=min(210,197)=197, 210-197=13 loss is recognized in income statement.

- **Effects of inventory write-downs on financial statements**

B/S	
Inventory	Decrease
Current Assets	Decrease
Quick ratio	**No change**
Current ratio	Decrease
Inventory turnover	**Increase**
Total assets	Decrease
Total asset turnover	Increase
Debt-to-assets	Increase
Equity	**Decrease**
Debt-to-equity	Increase

I/S	
COGS	Increase
Operating margin	Decrease
Net Income	Decrease
Net margin	Decrease
ROA,ROE<1	Decrease

- **Inventory changes**
  - When a firm change inventory cost flow methods, the change is made ***retrospectively***.
    - 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**
    - when a firm changes to LIFO from another cost flow method, the change is applied ***prospectively***.
      - Add the LIFO reserve to LIFO inventory.
      - Subtract the change in the LIFO reserve for the period from COGS.
      - Decrease cash by △LIFO reserve × tax rate.
      - Increase retained earnings (equity) by△ LIFO reserve × (1 – tax rate).

- **Assuming increasing prices**

LIFO to FIFO	
Profitability	Higher
Liquidity	Higher
Activity	Lower
Solvency	Lower

- **Inventory disclosures**
  - The cash flow method (LIFO,FIFO).
  - Total carrying value of inventory (raw materials, work-in-process, and finished goods).
    - **An increase in raw materials and/or work-in-process inventory** may be an indication of an expected increase in demand. Higher demand should result in higher
    - **An increase in finished goods inventory, while raw materials and work-in-process are decreasing,** may be an indication of decreasing demand and potential inventory write-downs in the future.
  - Carrying value of inventories reported at fair value less selling costs.
  - The cost of inventory recognized as COGS.
  - Amount of inventory write-downs during the period.
  - Reversals of inventory write-downs during the period, including a discussion of the circumstances of reversal(IFRS only).
  - Carrying value of inventories pledged as collateral.

- Analysis
  - **Inventory turnover that is too low** (high days of inventory on hand) may be an indication of slow-moving or obsolete inventory.
  - **High inventory turnover** together *with low sales growth relative to the industry* may indicate inadequate inventory levels and lost sales because customer orders could not be fulfilled.
  - High inventory turnover together *with high sales growth relative to the industry average* suggests that high inventory turnover reflects greater efficiency rather than inadequate inventory.

Summary

- Recognition ♥
- Valuation methods
  - IFRS ♥ ♥
  - U.S.GAAP ♥ ♥
  - **Perpetual and Periodic Inventory Systems ♥**
- **LIFO**
  - LIFO Reserve
  - LIFO Liquidation ♥
- **Inventory Adjustment**
  - IFRS V.S U.S.GAAP ♥ ♥ ♥
  - Inventory changes

- **Study session 8**
- Los28. Inventories
- **Los29. Long-lived Assets**
- Los30. Income Taxes
- Los31. Non-current Liabilities

PP&E

- **Capitalize the cost or expense the cost**
  - An expenditure that is expected to provide a future economic benefit over multiple accounting periods is **capitalized**, recognized as an asset on the balance sheet.

    达到可使用状态前的所有支出
  - Rebuilding the asset is also **capitalized**.
  - If the future economic benefit is unlikely or highly uncertain, the expenditure is **expensed** when incurred.
  - Maintenance and training cost are **expensed** when incurred.

Example from curriculum P663

Assume a hypothetical company, Trofferini S.A., Incurred the following expenditures to purchase a towel and tissue roll machine:

- 10,900 purchase price including taxes,
- 200 for delivery of the machine,
- 300 for installation and testing of the machine,
- 100 to train staff on maintaining the machine.
- In addition, the company paid a construction team 350 to reinforce the factory floor and ceiling joists to accommodate the machine's weight.
- The company also paid 1,500 to repair the factory roof (a repair expected to extend the useful life of the factory by five years)
- 1,000 to have the exterior of the factory and adjoining offices repainted for maintenance reasons. The repainting neither extends the life of factory and offices nor improves their usability.

1. Which of these expenditures will be ***capitalised*** and which will be expensed?

2. How will the treatment of these expenditures affect the company's financial statement?

Solution to 1:

Capitalized:

Purchase price 10,900+ delivery 200+ installation and testing 300 + 350 reinforce+ 1,500 repair =13,250.

Solution to 2:

Expensed:

Training 100+ painting 1,000=1,100.

- **Capitalized interest**
  - Capitalized interest is **not reported in the income statement** as interest expense.
    - Once construction interest is capitalized, the interest cost is allocated to the income statement through **depreciation expense** (if the asset is held for use), or **COGS** (if the asset is held for sale).
  - When a firm constructs an asset for its ***own use*** or, in limited circumstances, for ***resale***, the interest that accrues during the construction period is ***capitalized*** as a part of the asset's cost.
    - **IFRS**
      - ***Income earned on temporarily investing the borrowed monies decreases the amount of borrowing costs*** eligible for capitalization.
    - U.S.GAAP
      - Capitalize all interest cost
  - **The cash flow statement**
    - **Capitalized interest** : an outflow from investing activities,
    - **Interest expense**: an outflow from operating activities.

Example from curriculum P664

BILDA, a hypothetical company, borrows 1,000,000 at an interest rate of 10% per year on 1 January 2010 to finance the construction of a factory that will have ***a useful life of 40 years***. Construction is completed after two years, during which time the company **earns 20,000 by temporarily investing the loan proceeds**.

1. What is the amount of interest that will be **capitalized under IFRS**, and how would that amount differ form the amount that would be capitalized under U.S. GAAP?

2. Where will the capitalized borrowing cost appear on the company's financial statement?

Solution to 1:

Interest paid=1,000,000*10%*2=200,000.

- IFRS: capitalize=200,000-20,000=180,000.
- U.S.GAAP: capitalize=200,000.

Solution to 2:

- The capitalized borrowing costs will appear on the balance sheet as PP&E.
- As the property is depreciated, the capitalized interest component is part of subsequent year's depreciation expense on the income statement.
- CFI.

- **Financial statement analysis**

资本化和费用化在三张表上对比

	Capitalized	Expensed
B/S		
Assets	Higher	Lower
Equity	Higher	Lower
I/S		
Expense	Lower	Higher
Net income (first year)	Higher	Lower
Net income (Subsequent years)	Lower	Higher
Income variability	Lower	Higher
CFS	The same	
CFO	Higher	Lower
CFI	Lower	Higher
CFF	The same	
Debt ratio& debt-to-equity	Lower	Higher
Interest coverage (first year)	Higher	Lower
Interest coverage (subsequent year)	Lower	Higher

Intangible assets

- Patents，brand names, copyrights, and franchises.
- **Classification**
  - A finite-lived intangible asset is amortized over its useful life.
  - **Indefinite-lived intangible assets** are not amortized, but are tested for impairment at least annually.
  - **Identifiable intangible asset**
    - Capable of being separated from the firm or arise from a contractual or legal right.
    - Controlled by the firm.
    - Expected to provide future economic benefits.
  - **Unidentifiable intangible asset** is one that *cannot be purchased separately* and may have an indefinite life.
    - Goodwill is ***tested for impairment at least annually***.

- **Recognition**
  - **Intangible assets created internally**

	IFRS	U.S. GAAP
Research costs	Expensed	Expensed
Development costs	Capitalized	Expensed Exception: Software for sale

    - The financial statement effects of capitalizing intangible assets are the same as the effects of capitalizing other expenditures.
  - **Purchased intangible assets**
    - Recorded on the balance sheet at its **fair value.**
    - If the intangible asset is purchased as part of a group, the total purchase price is allocated to each asset on the basis of its fair value.
  - **Intangible assets obtained in a business combination**
    - Goodwill

Depreciation

- Carrying value= historical cost—accumulated depreciation
- **Depreciation methods**
  - **Straight-line depreciation**

$$\text{depreciation expense} = \frac{\text{original cost} - \text{salvage value}}{\text{depreciable life}}$$

  - **Accelerated-depreciation (double-declining balance)**

$$\text{DDB depreciation in year x} = \frac{2}{\text{depreciable life in years}} \times \text{book value at beginning of year } x$$

  - **Units-of-production method**

$$\text{units-of-production depreciation} = \frac{\text{original cost} - \text{salvage value}}{\text{life in output units}} \times \text{output units in the period}$$

Example from curriculum P687

You are analyzing three hypothetical companies: EVEN, SOONER, and AZUSED. At the beginning of Year 1, each company buys an identical piece of box manufacturing equipment for 2,300 and has the same assumptions about useful life, estimated residual value, and productive capacity. The annual production of each company is the same, but each company uses a different method of depreciation. As disclosed in each company's notes to the financial statements, each company's depreciation method.

- **Depreciation method**:

  EVEN: straight-line method; ***SOONER: double-declining balance method***; AZUSED: units-of-production method.

- **Assumptions and production**:

  Estimated residual value: 100;

  Estimated useful life: 4 years;

  Total estimated productive capacity: 800 boxes;

Production in each of the four years: 200 boxes in the first year, 300 in the second year, 200 in the third year, and 100 in the fourth year.

1. Using the following template each company, calculte annual depreciation expense for the box manufacturing equipment.

2. Explain the ***significant differences in the timing of the recognition*** of the depreciation expense.

Solution to 1:

EVEN: straight line (2,300-100)/4=550.

SOONER:

- Year 1: 2/4*2300=1,150.
- Year 2: 2/4*(2,300-1,150)=575.
- Year 3: 1/2*(2,300-1,150-575)=287.
- Year 4: 2,300-1,150-575-287=187.

AZUSED:

- (2300-100)/800=2.75.
- Year 1: 2.75* 200=550.
- Year 2: 2.75*300=825.
- Year 3: 2.75* 200=550.
- Year 4: 2.75*100=275

Solution to 2:

All three methods result in the same total amount of accumulated depreciation over the life of the equipment. The significant differences are simply in the timing of the recognition of the depreciation expense. ***The straight-line method recognizes the expense evenly***, the accelerated method recognizes most of the expense in first year, and **the units-of-production method recognizes the expense on the basis of production**. Under all three methods, the ending net book value is 100.

- **Component depreciation**
  - IFRS requires firms to depreciate the components of an asset ***separately***.
  - Component depreciation is allowed under U.S. GAAP but is seldom used.

Example from notebook P295

Global airlines purchased a new airplane with an all-inclusive cost of 50 million. The ***estimated life of the airplane is 30 years*** and the estimated **salvage value is 5 million**. Global expects to replace the interior of the aircraft after 15 years. The component cost of the interior is estimated at 3 million.

Calculate depreciation expense in Year 1 using the **straight-line method**, both assuming the interior is a separate component and assuming the component method is not used.

Solution:

- **Straight-line depreciation using the component method:**

Total aircraft cost 50,000,000 – interior cost 3,000,000= aircraft component 47,000,000.

Depreciation expense:

Aircraft component 1,400,000 (47,000,000-5,000,000)/30 years

-Interior component 200,000 (3,000,000/15 years)

= Year 1 expense 1,600,000.

- **Straight-line depreciation without the component method:**

Year 1 expense (50,000,000-5,000,000)/30=1,500,000.

- **Under both scenarios**

Component method 1,600,000*3=48,000,000.

Non-component method 1,500,000*30+200,000*15=48,000,000.

- **Effect of depreciation methods on net income**
  - N ↑ or salvage values ↑, Depreciation↓ net income ↑, equity ↑, asset ↑ ROE ↑, and ROA ↑.
    - A longer estimated ***useful life*** decreases annual depreciation and increases reported net income, while a shorter estimated useful life will have the opposite effect.
    - A higher estimate of the ***salvage value*** will also decrease depreciation and increase net income, while a lower estimate of the salvage value will increase depreciation and decrease net income.
  - A change in an accounting estimate, such as useful life or salvage value, is put into effect in the current period and **prospectively**.
  - **The average life is useful for two reason**
    - Older, less-efficient assets may make a firm less competitive.
    - The average age of assets helps an analyst to estimate the timing of major capital expenditures and a firm's future financing requirements.
    - **Average life**= accumulated depreciation/depreciation expense
    - **Total useful life**=historical cost/depreciation expense
    - **Remaining useful life**=ending PP&E/depreciation expense

Example from notebook P298:

Alpine Company purchased machinery for $20,000 with an estimated useful life of five years and a salvage value of $4,000. Alpine uses the straight-line depreciation method. At the beginning of the third year, Alpine reduces its **salvage value estimate to $1,600**. Determine the *depreciation expense* for each year.

Solution:

- **For the first two years**,

  Straight-line depreciation expense is [($20,000 original cost – $4,000 salvage value)/ 5-year life] = $3,200.

  At the beginning of the third year, the asset's **carrying value** on the balance sheet is:

  $20,000 original cost – $6,400 accumulated depreciation = $13,600.

- **To calculate straight-line depreciation expense for the remaining years,**

  Depreciation expense for ***the last three years*** is

  [($13,600 carrying value – $1,600 revised salvage value) / 3 years remaining life] = $4,000 each year.

Example from notebook P307

At the end of 2018, a company has gross PP&E of 3 million and accumulated depreciation of 1 million. During the year, ***depreciation expense was 500,000***.

What is the average age, total useful life, and remaining useful life of the company's PP&E?

Solution:

- Average age= accumulated depreciation/ depreciation expense=1,000,000/500,000=2 years.
- Total useful life= historical cost/ depreciation expense=3,000,000/500,000=6 years.
- Remaining useful life= ending net PP&E/ depreciation expense=2,000,000/500,000=4 years.

- Amortization
  - Intangible assets with finite lives are amortized over their useful lives.
  - Amortization is identical to the depreciation of tangible assets.
    - Straight-line
    - Accelerated
    - Units-of-production
  - **A trademark**
    - Have a specific expiration date, but can be *renewed at minimal cost*. The trademark is considered to have an indefinite life and no amortization is required.
  - **Effect of depreciation methods on net income**
    - N ↑ or salvage values ↑, Depreciation↓ net income ↑, equity ↑, asset ↑ ROE ↑, and ROA ↑.

Example from notebook P298

At the beginning of this year, Brandon Corporation entered into business acquisition. As a result of the acquisition, Brandon reported the following intangible assets:

• Patent 480,000 • Franchise agreement 350,000 • Copyright 150,000 • Goodwill 550,000

Total is 1,530,000

The patent expires in 12 years. The franchise agreement expires in 7 years but can ***be renewed indefinitely at a minimal cost***. The copyright is expected to be sold at the end of 20 years for $30,000. Use the **straight Line amortization method** to calculate the total carrying value of Brandon's intangible assets at the end of the year.

Solution:

Goodwill is an indefinite-lived asset and is not amortized. Because the franchise agreement can be renewed indefinitely at minimal cost, it is also considered an indefinite-lived asset and is not amortized.

- Using the straight-line method, **amortization expense is 46,000** as follows

  Patent 480,000/12=40,000+ Copyright (150,000-30,000)/20=6,000=46,000.

- The **carrying value at the end of the first year is 1,484,000** as follows:

  Intangible assets, at cost 1,530,000- accumulated amortization 46,000=1,484,000.

Revaluation

- **IFRS V.S U.S. GAAP**

	IFRS		U.S. GAAP
	Revaluation model	Cost model	Cost model
Reverse	√	√	× **Exception**: long-lived assets held for sale
Written-up	√	×	×

- **Cost model**
  - Cost= original cost-accumulated depreciation-any impairment
- **Revaluation model**
  - Permit a long-lived asset to be reported at its **fair value.**

- **First revaluation date**
  - **Fair value< carrying value**
    - A loss is reported on the income statement.
  - **Fair value > carrying value**
    - **Revaluation surplus**, a component of equity, net income is not affected.
- **Subsequent revaluation dates**
  - **Fair value > carrying value**
    - a gain is first reported on the income statement to the extent it reverses any previously recorded loss from revaluation.
    - If the revaluation gain is greater than prior losses reported in the income statement that have not been reversed, the excess is reported in the revaluation surplus account.
  - **Fair value< carrying value**
    - The difference first goes to reduce any existing balance in the **revaluation surplus account**.
    - Any remaining difference in excess of the balance in the revaluation surplus account is reported on the income statement as a loss.

Example from curriculum P700

UPFIRST, a hypothetical manufacturing company, has elected to use the revaluation model for its machinery. Assume for simplicity that the company owns a single machine, which it ***purchased for 10,000 on the first day of its fiscal period***, and that the measurement date occurs simultaneously with the company's fiscal period end.

1. At the end of the first fiscal period after acquisition, assume the fair value of the machine is determined to be 11,000. how will the company's financial statement reflect the asset?
2. At the end of the second fiscal period after acquisition, assume the fair value of the machine is determined to be 7,500. how will the company's financial statements reflect the asset?

Solution to 1:

The company's balance sheet will show the asset at a value of 11,000. the 1,000 increase in the value of the asset will appear in the other comprehensive income and accumulated in equity under the heading of revaluation surplus.

Solution to 2:

At the end of the second fiscal period, the company's balance sheet will show the asset at a value of 7,500. the total decrease in carrying amount of the asset is 3,500 (11,000-7,500). Of the 3,500 decrease, the first 1,000 will reduce the amount previously accumulated in equity under the heading of revaluation surplus. The other 2,500 will be shown as a loss on the income statement.

Example from curriculum P701

DOWNFIRST, a hypothetical manufacturing company, has elected to use **the revaluation model** for its machinery. Assume for simplicity that the company owns a single machine, which it purchased for 10,000 on the first day of its fiscal period, and that the measurement date occurs simultaneously with the company's fiscal period end.

1. At the end of the first fiscal period after acquisition, assume the fair value of the machine is determine to be 7,500. how will the company's financial statements reflect the asset?
2. At the end of the second fiscal period after acquisition, assume the fair value of the machine is determine to be 11,000. how will the company's financial statements reflect the asset?

Solution to 1:

The company's balance sheet will show the asset at a value of 7,500. the 2,500 decrease in the value of the asset will appear as a loss on the company's income statement.

Solution to 2:

At the end of the second fiscal period, the company's balance sheet will show the asset at a value of 11,000.The total increase in the carrying amount of the asset is an increase of 3,500 (11,000-7,500). Of the 3,500 increase, the first 2,500 reverse as a gain on the income statement. ***The other 1,000 will be reported as other comprehensive income*** and be accumulated in equity under the heading of revaluation surplus.

- **Revaluing an asset's value upward**
  - **Balance sheet**
    - Assets↑, equity↑; Debt ratio↓, debt-to-equity ratio↓
  - **Income statement**
    - Depreciation↑; Net income↓; ROA↓, ROE↓

Impairments

- **Impairments under IFRS**
  - **Conditions**
    - **Significant decline** in the market value of the asset.
    - Significant change in the asset's **physical condition**.
  - **Impairments**

Min (carrying value, recoverable amount)

↓

Max (fair value-selling costs, value in use)

    - Value in use is the present value of its future cash flow stream from continued use.

- **If impaired,**
  - I/S: An impairment loss is recognized in the income statement, and the **loss can be reversed, but cannot exceed the carrying value** before the impairment loss was recognized. **No written-up.**
  - **B/s:** the asset's value must be written down on the balance sheet to the recoverable amount.

- **Impairments under U.S. GAAP**
  - **Conditions**
    - events and circumstances indicate the firm may not be able to recover the carrying value through future use.
  - **Step 1: Recoverability test**
    - If carrying value＞future **undiscounted** cash flow, the asset is impaired.
  - Step 2
    - If impaired, the asset's value is **written down to fair value** on the balance sheet and a loss is recognized in the income statement.
  - **Loss recoveries are typically not permitted.**
- ***Intangible Assets with Indefinite Lives***
  - Intangible assets with indefinite lives are not amortized.
  - They are tested for impairment at least annually.
  - An impairment loss is recognized in the income statement when the carrying amount exceeds fair value.

Example from curriculum P704

Sussex, a hypothetical company in the United Kingdom, has a machine it uses to produce a single product. ***The demand for the product has declined substantially*** since the introduction of a competing product. The company has assembled the following information with respect to the machine:

- Carrying amount 18,000
- Undiscounted expected future cash flows 19,000
- Present value of expected future cash flows 16,000
- Fair value if sold 17,000
- Cost to sell 2,000

1. Under **IFRS**, what would the company report for the machine?
2. Under US **GAAP**, what would the company report for the machine?

Solution to 1:

Under IFRS, the company would compare the carrying amount 18,000 with the higher of its fair value less costs to sell 15,000 and its value in use 16,000. the carrying amount exceeds the value in use, the higher of the two amounts, by 2,000. the machine would be **written down** to the recoverable amount of 16,000, and a loss of 2,000 would be reported in the income statement. The carrying amount of the machine is now 16,000. a new depreciation schedule based on the carrying amount of 16,000 would be developed.

Solution to 2:

Under US GAAP, the carrying amount 18,000 is compared with the undiscounted expected future cash flows 19,000. the carrying amount is ***less than the undiscounted expected future cash flows***, so the carrying amount is considered recoverable. The machine would continue to be carried at 18,000, and *no loss would be reported*.

Example from curriculum P705

Essex, a hypothetical company in the United Kingdom, has a machine it uses to produce a single product. ***The demand for the product has declined substantially*** since the introduction of a competing product. The company has assembled the following information with respect to the machine:

- Carrying amount 18,000
- Undiscounted expected future cash flows 16,000
- Present value of expected future cash flows 14,000
- Fair value if sold 10,000
- Cost to sell 2,000

1. Under **IFRS**, what would the company report for the machine?
2. Under US **GAAP**, what would the company report for the machine?

Solution to 1:

Under IFRS, the company would compare the carrying amount 18,000 with the higher of its fair value less costs to sell 8,000 and its value in use 14,000. the carrying amount exceeds the value in use, the higher of the two amounts, by 4,000. the machine would be **written down** to the recoverable amount of 14,000, and a loss of 4,000 would be reported in the income statement. The carrying amount of the machine is now 14,000. a new depreciation schedule based on the carrying amount of 14,000 would be developed.

Solution to 2:

Under US GAAP, the carrying amount 18,000 is compared with the undiscounted expected future cash flows 16,000. the carrying amount exceeds ***the undiscounted expected future cash flows***, so the carrying amount is considered not recoverable. The machine would be written down to fair value of 10,000, and a loss of 8,000 would be reported in the income statement. The carrying amount of the machine is now 10,000. a new depreciation schedule based on the carrying amount of 10,000 would be developed.

- **Long-lived assets held for sale**
  - The asset is no longer depreciated or amortized, tested for impairment.
  - If **carrying value＞net realizable value**(fair value- selling costs), the asset is written down to net realizable value and the loss is recognized in the income statement.
  - **The loss reversal is allowed under IFRS and U.S. GAAP.** However, the loss reversal is limited to the original impairment loss.
- Derecognition
  - Sell
    - The asset is removed from the balance sheet and the difference between the sale proceeds and the carrying value of the asset is reported as a gain or loss in the income statement.
  - Abandon
    - The treatment is similar to a sale, except there are no proceeds.
  - Exchange
    - The carrying value of the old asset is removed from the balance sheet and the new asset is recorded at its **fair value**.

Example from curriculum P708

Moussilauke, a hypothetical company, as a result of revamping its menus to focus on healthier food items, sells 450 used pizza ovens and reports a gain on the sale of 1.2 million. The ovens had a carrying amount of 1.9 million (original cost of 5.1 million less 3.2 million of accumulated depreciation). At what price did Moussilauke sell the ovens?

A. 0.7 million. B. 3.1 million. C. 6.3 million.

Solution:

B.1.2+1.9=3.1 million.

- **Impairments influence**
  - **Balance sheet**
    - Assets↓, equity↓
    - Debt ratio↑, debt-to-equity ratio↑
  - **Income statement**
    - Net income↓，ROA↓, ROE↓
    - In subsequent periods:
      - Depreciation↓，Net income↑
      - ROA↑, ROE↑
  - **Cash flow statement**
    - **No effect**

- **Analysis of impairment**
  - The firm has not recognized sufficient depreciation or amortization expense, and has overstated earnings as a result.
  - Impairment decisions present an opportunity for management to manipulate earnings. Waiting to recognize an impairment loss until a period of relatively high earnings would tend to **smooth earnings**.
  - Lower values for assets and equity give a boost to ROA and ROE going forward.

- **Disclosure**
  - **IFRS disclosure**
    - Historical cost; Useful lives or depreciation rate; Gross carrying value and accumulated depreciation; Reconciliation of carrying amounts from the beginning of the period to the end of the period; Title restrictions and assets pledged as collateral; Agreements to acquire PP&E in the future.
    - If the revaluation (fair value) model is used, the revaluation date; how fair value was determined; Carrying value using the historical cost model.
    - For impaired assets, Amounts of impairment losses and reversals by asset class; Where the losses and loss reversals are recognized in the income statement; Circumstances that caused the impairment loss or reversal.
    - For intangible assets, the firm must disclose whether the useful lives are finite or indefinite.

- **U.S.GAAP disclosure**
  - Depreciation expense by period; Balances of major classes of assets by nature and function, such as land, improvements, buildings, machinery, and furniture; Accumulated depreciation by major classes or in total; General description of depreciation methods used.
  - The firm must provide an estimate of amortization expense for the next five years.
  - For impaired assets, A description of the impaired asset; Circumstances that caused the impairment; How fair value was determined; The amount of loss; Where the loss is recognized in the income statement.

Investment property

- Concepts
  - Under IFRS, property that a firm owns for the purpose of collecting rental income, earning capital appreciation, or both, is classified as **investment property.**
    - **Cost model or a fair value model**
    - Revaluation above historical cost is recognized as a gain on the income statement.
    - Firms are required to disclose which valuation model they use for investment property.
  - **U.S. GAAP** does not distinguish investment property from other kinds of long-lived assets.

	IFRS		U.S. GAAP
	Fair value model	Cost model	Cost model
Reverse	√	√	×
Written-up	√	×	×

- Fair value model V.S Revaluation model

	Fair value model	Revaluation model
Value increases	I/S	**Reverse**: I/S, Written-up: OCI, B/S
Value decreases	I/S	I/S

- Transfers to or from investment property (fair value model)

Transfer From	*Transfer To*	*Financial Statement Treatment*
Owner-occupied	Investment property	Treat as revaluation: recognize gain 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

Lease

- A lease
  - A *lease is a contractual arrangement whereby the lessor, the owner of an asset, allows* a lessee to use the asset for a specified period of time in return for periodic payments.
- **Classification**
  - **Operating leases**: rental
    - Rental expense in the income statement.
    - Lease payment is an outflow of operating cash flow.
  - **Finance leases** (capitalized lease in USA): a purchase of an asset that is financed with debt.
    - Lessee: recognized asset and liabilities on the balance sheet.

Summary

- **PP&E**
  - Capitalize the cost or expense the cost
- **Intangible assets**
- **Depreciation**
  - Depreciation methods
  - Effect of depreciation methods on net income
- **Revaluation**
- **Impairments**
  - IFRS
  - U.S.GAAP
- Investment property

- **Study session 7**
  - Los 28. Inventories
  - Los 29. Long-lived Assets
  - **Los 30. Income Taxes**
  - Los 31. Non-current Liabilitie

Terminology

Accounting and tax

Accounting	Tax
Accounting profit	Taxable income
Income tax expense	Income tax payable
Carrying amount	Tax bases
Deferred tax liabilities	Tax loss carryforward
Deferred tax assets	Income tax paid
Valuation allowance	

- **Income tax expense= taxes payable+△DTL-△DTA**

- Differences
  - **Occurrences**
    - 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.
  - **Permanent difference**
    - A difference between taxable income (tax return) and pretax income (income statement) that will not **reverse** in the future.
  - **Temporary difference**
    - A difference between the tax base and the carrying value of an asset or liability that will result in either taxable amounts or ***deductible amounts in the future***.

- **Deferred Tax Liabilities**
  - **Income tax expense (income statement) >** taxes payable (tax return) due to temporary differences.
  - **Revenues** (or gains) are recognized in the income statement before they are included on the tax return due to temporary differences.
  - **Expenses** (or losses) are tax deductible before they are recognized in the income statement.
    - A deferred tax liability is most often created when an **accelerated depreciation method** is used on the tax return and straight-line depreciation is used on the income statement.
  - Deferred tax liabilities are expected to **reverse** (i.e., they are caused by temporary differences) and result in future cash outflows when the taxes are paid.

- **Deferred Tax Assets**
  - **Taxes payable** (tax return) are greater than income tax expense (income statement) due to temporary differences.
  - **Revenues** (or gains) are taxable before they are recognized in the income statement.
  - **Expenses** (or losses) are recognized in the income statement before they are tax deductible.
    - *Post-employment benefits, warranty expenses, and tax loss carryforwards are typical* causes of deferred tax assets.
  - Tax loss carryforwards are available to reduce future taxable income.
- **Analysis**
  - If deferred tax liabilities are expected to **reverse** in the future, they are best classified by an analyst as liabilities.
  - If deferred tax liabilities are **not expected to reverse** in the future, they are best classified as **equity** (DTL decreased and equity increased by the same amount).

Taxes bases

- **Taxes bases of 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.
  - The **carrying value** is the value of the asset reported on the financial statements, net of depreciation and amortization.
  - Tax base of assets>Carrying value of assets, **a deferred tax asset**.
    - The temporary difference will be reverse in the future.
    - Sufficient taxable profits are expected to exist when the reversal occurs.
  - Tax base of assets<Carrying value of assets, A **deferred tax liability**

- **Depreciable equipment**

Example from notebook P328:

The cost of equipment is $100,000. In the income statement, depreciation expense of $10,000 is recognized each year for ten years. On the tax return, the asset is depreciated at $20,000 per year for five years.

Solution:

At the end of the first year,

- The tax base is $80,000 ($100,000 cost – $20,000accumulated tax depreciation) ,
- The carrying value is $90,000 ($100,000 cost –$10,000 accumulated financial depreciation).
- Tax base of assets>Carrying value of assets, A **deferred tax liability** ($10,000 × tax rate) is created.

- **Research and development**

Example:

At the beginning of this year, $75,000 of R&D was ***expensed*** in the income statement. On the tax return, the R&D was capitalized and is amortized on a straight-line basis over three years.

Solution:

At the end of the first year,

- The tax base is $50,000 ($75,000 cost – $25,000 accumulated tax amortization)
- The asset has no carrying value (does not appear on the balance sheet) because the entire cost was expensed.
- Tax base of assets>Carrying value of assets, **a deferred tax asset**.

- **Accounts receivable**

Example from notebook P328:

Gross receivables totaling $20,000 are outstanding at year-end. Because collection is uncertain, the firm recognizes **bad debt expense** of $1,500 in the income statement. For tax purposes, bad debt expense cannot be deducted until the receivables are deemed worthless.

Solution:

At the end of the year,

- Tax base of the receivables is $20,000 since no bad debt expense has been deducted on the tax return.
- The carrying value is $18,500 ($20,000 –$1,500 bad debt expense).
- Tax base of assets>Carrying value of assets, **a deferred tax asset**.

- A short summary

	Accounting	Taxes bases	
Depreciable equipment	SL、DDB	MACRS	DTL
Research and development	US.GAAP: Expensed	R&D is capitalized and is amortized on a straight-line basis	DTA
Accounts receivable	Bad debt expense	bad debt expense cannot be deducted until the receivables are deemed worthless	DTA

- **Taxes base of liabilities**
  - **Liability's tax base** is the carrying value of the liability ***minus any amounts that will be deductible on the tax return in the future***.
  - **The tax base of revenue received in advance** is the carrying value minus the amount of revenue that will not be taxed in the future.
  - Tax base of liabilities<Carrying value of liabilities, **a deferred tax asset**.
  - Tax base of liabilities>Carrying value of liabilities, A **deferred tax liability.**
  - When the parent company recognizes earnings from the investment before dividends are received, and the parent company can ***control the timing of the future reversal*** and it is probable the temporary difference will not reverse, no DTL is reported.

- **Customer advance**

Example from notebook P330

At year-end, $10,000 was received from a customer for goods that will be shipped next year. On the tax return, revenue received in advance is taxable when collected.

Solution:

- The ***carrying value of the liability is $10,000***.
- For revenue received in advance, the tax base is equal to the carrying value minus any amounts that will *not be taxed in the future.* Since the customer advance has already been taxed, $10,000 will not be taxed in the future.
- Thus, the customer advance liability has ***a tax base of zero*** ($10,000 carrying value – $10,000 revenue not taxed in the future).
- **A deferred tax asset**.

- **Warranty liability**

Example from notebook P330

At year-end, a firm estimates that $5,000 of warranty expense will be required on goods already sold. On the tax return, ***warranty expense is not deductible until the warranty work is actually performed***. The warranty work will Be performed next year.

Solution:

- The carrying value of the warranty liability is $5,000.
- The tax base is equal to the carrying value minus the amount deductible in the future. Thus, *the warranty liability has a tax base of zero* ($5,000 carrying value – $5,000 warranty expense deductible in the future).
- Delayed recognition of this expense, **a deferred tax asset**.

- **Note payable**

Example from notebook P330

The firm has an outstanding promissory note with a principal balance of $30,000. Interest accrues at 10% and is paid at the end of each quarter.

Solution:

- The promissory note is treated the same way on the tax return and in the financial statements. Thus, the carrying value and the tax base are both $30,000.
- Interest paid is included in both pre-tax income on the income statement and in taxable income on the tax return.
- With no timing difference, no deferred tax items are created.

- A short summary

	Accounting	Taxes bases	
Customer advance	Dr: cash Cr: unearned revenue	Revenue received in advance is taxable when collected.	DTA
Warranty liability	Recognize warranty expense before it is actually performed	warranty expense is not deductible until the warranty work is actually performed	DTA
Note payable		interest accrues and is paid at the end of each quarter.	N/A

- **Tax rate changes**
  - Tax rate↑, DTA、DTL ↑
  - Tax rate↓, DTA、DTL ↓
  - **Income tax expense= taxes payable+△DTL-△DTA**

Example from notebook P334

A firm owns ***equipment*** with a carrying value of $200,000 and a tax base of $160,000 at year-end. The tax rate is 40%. In this case, the firm will report a **DTL of $16,000** [($200,000 carrying value – $160,000 tax base) × 40%]. The firm has recognized ***a bad debt expense*** of $10,000 in its financial statements which is not yet deductible for tax purposes. The bad debt expense created a **DTA of $4,000** [($10,000 tax base – zero carrying value) × 40%]. Calculate the effect on the firm's income tax expense if **the tax rate decreases to 30%**.

Solution:

- As a result of the decrease in tax rate, the balance of the DTL is reduced to $12,000 [($200,000 carrying value – $160,000 tax base) × 30%]. Thus, due to the lower tax rate, the change in the DTL is –$4,000 ($16,000 reported DTL – $12,000 adjusted DTL).

- The balance of the DTA is reduced to $3,000 [($10,000 tax base – zero carrying value) × 30%]. Thus, due to the lower tax rate, the DTA decreases by $1,000 ($4,000 reported DTA – $3,000 adjusted DTA).

- Using the income tax equation, we can see that income tax expense decreases by $3,000 (income tax expense = taxes payable + ΔDTL – ΔDTA).

Differences

- **Permanent differences**
  - A difference between taxable income and pretax income that will **not reverse** in the future. Permanent differences do not create deferred tax assets or deferred tax liabilities.
  - Causes
    - Revenue is not taxable.
    - Expenses that are not deductible.
    - Tax credits that result in a direct reduction of taxes.
  - Permanent differences will cause the firm's **effective tax rate to differ from the statutory tax rate**.

$$\text{effective tax rate} = \frac{\text{income tax expense}}{\text{pretax income}}$$

- Temporary difference
  - **A deferred tax liability** results from using accelerated *depreciation for tax* purposes and straight-line depreciation for the financial statements.
  - **Impairments** generally result in a deferred tax asset
    - Expensed V.S. the deduction on the tax return is generally not allowed until the asset is sold or disposed of (tax purpose).
  - **Restructuring** generates a deferred tax asset
    - the costs are recognized for financial reporting purposes when the restructuring is announced, but not deducted for tax purposes until actually paid.
  - 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. Other countries are not.
  - **Post-employment benefits and deferred compensation** generate a deferred tax asset
    - recognized for financial reporting when earned by the employee but not deducted for tax purposes until actually paid.

- **A deferred tax adjustment is made to stockholders' equity**
  - Available for sale: No DTL is added to the balance sheet for the future tax liability when gains/losses are realized.

- Disclosures
  - Deferred tax liabilities, deferred tax assets, any valuation allowance, and the net change in the valuation allowance over the period.
  - Any **unrecognized deferred tax liability** for undistributed earnings of subsidiaries and joint ventures.
  - Current-year tax effect of each type of temporary difference.
  - Components of income tax expense.
  - **Reconciliation** of reported income tax expense and the tax expense based on the statutory rate.
  - Tax loss carry forwards and credits.

Example from notebook P335

Using the following table and the examples of determining the tax base of assets and liabilities presented earlier, identify the type of difference (taxable temporary, deductible temporary, or permanent), and determine if the difference creates a DTA or a DTL.

	Tax base	Carrying value	Type of difference	Result
Assets				
Depreciation equipment	80,000	90,000		
Research and development	50,000	0		
Account receivable	20,000	18,500		
Municipal bond interest	5,000	5,000		
Liabilities				
Customer advance	0	10,000		
Warranty liability	0	5,000		
Officer's life insurance	30,000	30,000		
Interest paid	0	0		

Solution:

- **Depreciable equipment**

  Tax base of equipment<carrying value of equipment, DTL.

- **Research and development**

  Tax base of assets>carrying value of assets, DTA.

- Accounts receivable

  Tax base of assets>carrying value of assets, DTA.

- **Municipal bond interest**

  Permanent difference, no deferred taxes are recognized.

- **Customer advance**

  Tax base of liability<carrying value of liability, DTA.

- **Warranty liability**

Tax base of assets<carrying value of assets, DTA.

- **Officer's life insurance**

Since officer's life insurance is not tax deductible, it results in a permanent difference. No deferred taxes are recognized.

- **Note payable and interest paid**

No temporary differences, no deferred taxes are recognized.

Valuation allowance

- **Valuation allowance**
  - A **contra account** that reduces the net balance sheet value of the DTA.
    - U.S. GAAP: if it is more likely (greater than a 50% probability) that some or all of a DTA will not be realized (insufficient future taxable income to recover the tax asset), recognize a valuation allowance.
  - Influence
    - **Increasing valuation allowance**
      - Decrease the net balance sheet DTA.
      - Increase income tax expense and decreasing net income.
    - **Decreasing valuation allowance**
      - Increase DTA.
      - Higher earnings.
  - It is **up to management** to decide the recognition of all deferred tax assets.

- **Analyst**
  - Pay more attention to companies with large DTA, also scrutinize changes in the valuation allowance to determine whether those changes are economically justified.

Current and deferred tax items

- **Current taxes payable**
  - Current taxes payable are based on the applicable tax rates ***on the balance sheet date*** of an entity.
- **Deferred taxes**
  - Measured at the tax rate that is expected to apply ***when the asset is realized or the liability settled***.
    - For example，a capital gains tax rate is lower than the marginal tax rate. If, given its tax base, the currently unrealized gains on an asset will be taxed at the capital gains rate when the asset is disposed of, that rate should be used to calculate the deferred tax.
  - If a change that leads to a deferred tax item is **taken directly to equity**, such as an upward revaluation, the deferred tax item should also be taken directly to equity.
    - IFRS revalues PP&E upward. The revaluation gain is taken directly to equity. The related future tax liability should be taken to equity as well. The adjustment is to reduce the amount of the gain added to revaluation surplus by the amount of the future tax liability on the revaluation gain.

- Effective tax rate reconciliation
  - Some firms' reported income tax expense differs from the amount based on the statutory income tax rate (multinational companies). Difference comes from:
    - Different tax rates in different tax jurisdictions (countries).
    - **Permanent tax differences**: tax credits, tax-exempt income, nondeductible expenses, and tax differences between capital gains and operating income.
    - Changes in tax rates and legislation.
    - Deferred taxes provided on the reinvested earnings of foreign and unconsolidated domestic affiliates.
      - Indefinitely reinvested.
    - **Tax holidays** in some countries (watch for special conditions such as termination dates for the holiday or a requirement to pay the accumulated taxes at some point in the future).

IFRS and U.S.GAAP

	U.S. GAAP	*IFRS*
Revaluation of fixed assets and intangible assets	Not applicable, no revaluation allowed.	Deferred taxes are recognized in equity.
Undistributed profit from an investment in a subsidiary	No deferred taxes for foreign subsidiaries that meet the indefinite reversal criterion. No deferred taxes for domestic subsidiaries if the amounts are tax free.	Deferred taxes are recognized unless the parent is able to control the distribution of profit and it is probable the temporary difference will not reverse in the future.
Undistributed profit from an investment in a joint venture (JV)	No deferred taxes for foreign corporate JVs that meet the indefinite reversal criterion.	Deferred taxes are recognized unless the venturer is able to control the sharing of profit and it is probable the temporary difference will not reverse in the future.

	U.S.GAAP	IFRS
Undistributed profit from an investment in an associate firm.	Deferred taxes are recognized from temporary differences.	Deferred taxes are recognized unless the investor is able to control the sharing of profit and it is probable the temporary difference will not reverse in the future.
Deferred tax asset recognition	Recognized in full and then reduced if "more likely than not" that some or all of the tax asset will not be realized.	Recognized if "probable" that sufficient taxable profit will be available to recover the tax asset.
Tax rate used to measure deferred taxes	Enacted tax rate only.	Enacted or substantively enacted tax rate.
Presentation of deferred taxes on the balance sheet	Classified as current or noncurrent based on the classification of the underlying asset or liability.	Classified as noncurrent.

Summary

- **Terminology**
- **Taxes bases**
  - **Taxes bases of assets**
  - **Taxes base of liabilities**
  - **Tax rate changes**
- **Differences**
  - **Permanent differences**
  - **Temporary difference**
- Valuation allowance
- Current and deferred tax items
- IFRS and U.S.GAAP

- **Study session 7**
  - Los 28. Inventories
  - Los 29. Long-lived Assets
  - Los 30. Income Taxes
  - **Los 31. Non-current Liabilities**

Bonds

- Bonds concepts
  - **Face value** is the amount of principal that will be paid to the bondholder at maturity.
  - **Coupon rate** is the interest rate stated in the bond that is used to calculate the coupon payments.
  - Coupon payments= face value* coupon rate
  - The **effective rate of interest** is the interest rate that equates the present value of the future cash flows of the bond and the issue price.
  - The **balance sheet liability of a bond** is equal to the present value of its remaining cash flows (coupon payments and face value), discounted at the market rate of interest *at issuance.*
  - Interest expense= book value of the bond liability* market rate of interest when bond issued.

- **Bonds Issued at Par**
  - When the market rate is equal to the coupon rate, the bond is a par bond.
  - **On the balance sheet**, assets and liabilities increase by the bond proceeds (face value). The book value of the bond liability will not change over the term of the bond.
  - **On the income statement**, interest expense=coupon
  - **On the cash flow statement**
    - The issue proceeds are reported as a cash inflow from financing activities
    - The coupon payments are reported as cash outflows from operating activities (under U.S. GAAP; they may be reported as CFO or CFF outflows under IFRS).
    - At maturity, repayment of the face value is reported as a cash outflow from financing activities.

- **Bonds Issued at a Discount or Premium**
  - When the market rate is greater than the coupon rate, the bond is a discount bond (priced below par).
  - When the market rate is less than the coupon rate, the bond is a premium bond (priced above par).
  - **A premium bond** is reported on the balance sheet at more than its face value. As the premium is amortized (reduced), the book value of the bond liability will ***decrease*** until it reaches the face value of the bond at maturity.
    - Interest expense < coupon payment
  - **A discount bond** is reported on the balance sheet at less than its face value. As the discount is amortized, the book value of the bond liability will ***increase*** until it reaches face value at maturity.
    - Interest expense > coupon payment
  - IFRS: effective interest rate method only. Interest is CFO or CFF.
  - **U.S.GAAP**: effective interest rate method or straight-line method. Interest is CFO.

Example:

On December 31, 2015, a company issued a 3-year, 10% annual coupon bond with a face value of 1000. Calculate the book value of the bond at year-end 2016,2017,2018, and the interest expense for 2016, 2017, 2018, assuming the bond was issued at a market rate of interest of

(a) 10%;

(b) 9%;

(c) 11%.

(a) 10%

PV(CF)=100/1.1+100/1.1^2+1100/1.1^3=1000.

第一年: coupon=1000*10%=100. interest expense=1000*10%=1000.

1000+100-100=1000.

第二年: coupon=1000*10%=100. interest expense=1000*10%=1000.

1000+100-100=1000.

第三年: coupon=1000*10%=100. interest expense=1000*10%=1000.

1000+100-100=1000.

(b) 9%

PV(CF)=100/1.09+100/1.09^2+1100/1.09^3=1025.

第一年: coupon=1000*10%=100. interest expense=1025*9%=92.

1025+92-100=1017.

第二年: coupon=1000*10%=100. interest expense=1017*9%=92.

1017+92-100=1009.

第三年: coupon=1000*10%=100. interest expense=1009*9%=91.

1009+91-100=1000.

(c) 11%

PV(CF)=100/1.11+100/1.11^2+1100/1.11^3=976.

第一年: coupon=1000*10%=100. interest expense=976*11%=107.

976+107-100=983.

第二年: coupon=1000*10%=100. interest expense=983*11%=108.

983+108-100=991.

第三年: coupon=1000*10%=100. interest expense=991*11%=109.

991+109-100=1000.

- **Financial statement effects**
  - **Cash flow impact of issuing a bond**

	CFF	CFO
Issuance of debt	Increased by cash received (PV of future cash flows)	No effect
Periodic interest payments	No effect	Decreased by interest paid (coupon rate* face value)
Payment at maturity	Decreased by face value	No effect

- **Income statement impact of issuing a bond**

interest expense= market rate at issue * beginning value of liability

Issued at par	Issued at premium	Issued at a discount
Market rate= coupon rate	Market rate< coupon rate	Market rate> coupon rate
Interest expense= cash paid	Interest expense= cash paid-amortization of premium	Interest expense= cash paid+amortization of discount
Interest expense is constant	Interest expense decrease over time	Interest expense increase over time

- **Balance sheet impact of issuing a bond**

Issued at par	Issued at a premium	Issued at a discount
Carried at face value	Carried at face value plus premium.	Carried at face value less discount
	The liability decreases as the premium is amortized to interest expense.	The liability increases as the discount is amortized to interest expense.

- **Zero-coupon bonds**
  - A pure-discount bond, make no periodic interest payments, and pay face value at maturity.
- **Issuance costs**
  - Issuing a bond involves legal and accounting fees, printing costs, sales commissions, and other fees.

	B/S	CF/S
IFRS	Asset: Liability: • Unamortized discount, netted • Effective interest rate increases	CFF, netted (issuer)
U.S GAAP	Asset: Liability:	CFF, netted (issuer)

- **Fair Value Reporting Option**
  - An increase in the bond's yield will result in a decrease in the fair value of the bond Liability.
  - A decrease in the bond's yield increases its fair value.
  - IFRS and U.S. GAAP give firms the **irrevocable option** to report debt at fair value.
    - Under this option, gains (decreases in bond liability) and losses (increases in bond liability) that result from changes in bonds' market yields are reported in the income statement.
  - **Analysis**
    - **The market value of a firm's debt may be more appropriate** than its book value.

- **Derecognition of debt**
  - When market interests have fallen, it is cheaper to refinance.
  - A gain or loss is recognized by subtracting the redemption price from the book value of the bond liability at the reacquisition date.
  - If the redeemed bonds' **issuance costs** were capitalized, any remaining unamortized costs must be written off and included in the gain or loss calculation.
  - Any gain or loss from redeeming debt is reported in the income statement, usually as a part of ***continuing operations***, and additional information is disclosed separately.
  - Analysts often ***eliminate the gain or loss from the income statement for analysis*** and forecasting.

- **Debt covenants**
  - **Affirmative covenants**
    - 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.
  - **Negative covenants**
    - Increasing dividends or repurchasing shares.
    - Issuing more debt.
    - Engaging in mergers and acquisitions.
  - **Technical default**
    - The bondholders can demand immediate repayment of principal if the firm violates a covenant.

- Disclosures
  - The nature of the liabilities.
  - Maturity dates.
  - Stated and effective interest rates.
  - Call provisions and conversion privileges.
  - Restrictions imposed by creditors.
  - Assets pledged as security.
  - The amount of debt maturing in each of the next five years.

Leases

- **A lease**
  - A contractual arrangement whereby the lessor, the owner of the asset, allows the lessee to use the asset for a specified period of time in return for periodic payments.
  - Benefits
    - Less costly financing.
    - Reduced risk of obsolescence.
    - Less restrictive provisions.
    - Off-balance-sheet financing.
    - Tax reporting advantages.

- **Categories**
  - A **finance lease** is, in substance, a purchase of an asset that is financed with debt..
    - **Title** to the leased asset is transferred to the lessee at the end of the lease.
    - The lessee can purchase the leased asset for a price that is ***significantly lower*** than the fair value of the asset at some future date.
    - The lease term covers a major portion of the asset's economic life (**75%**).
    - The present value of the lease payments is substantially equal to the fair value of the leased asset (**90%**).
    - The leased asset is so ***specialized*** that only the lessee can use the asset without significant modifications.
  - An **operating lease** is essentially a rental arrangement.
    - No asset or liability is reported by the lessee.
    - The periodic lease payments are simply recognized as rental expense in the income statement.

Lessee

- **Operating lease**
  - Income statement
    - *Rent expense* equal to the lease payment is recognized in the lessee's income statement.
  - Cash flow statement
    - Lease payment is CFO.
- **Financing lease**
  - Balance sheet
    - At the inception of the lease, the lower of the present value of future minimum lease payments or the fair value of the leased asset is recognized as both an asset and as a liability on the lessee's balance sheet.
  - Income statement
    - Depreciation and interest expense.
  - Cash flow statement
    - Intrest: CFO. Principal: CFF.

Example:

A company leases a machine, 4 years, with annual payments of 100 millions. At the end of the lease, the machine is returned to the lessor, no salvage value, the appropriate ***interest rate is 6%,*** straight-line depreciation, the lease payments are made at the end of the year. Calculate the impact of the lease on the company's balance sheet, income statement and cash flow statement for each of the four years.

Income statement

Operating lease		Financial lease		
	Rent	Depreciation	Interest	total
1	100	86.5	21	107.5
2	100	86.5	16	102.5
3	100	86.5	11	97.5
4	100	86.5	6	92.5
total	400	346	54	400

Cash flow statement

	Finance lease		Operating
	CFO	CFF	CFO
1	-21	-79	-100
2	-16	-84	-100
3	-11	-89	-100
4	-6	-94	-100

- **Impacts**

	Finance lease	Operating lease
Assets	Higher	Lower
Liabilities	Higher	Lower
Net income (in the early years)	Lower	Higher
Net income (later years)	Higher	Lower
Total net income	Same	Same
EBIT	Higher	Lower
CFO	Higher	Lower
CFF	Lower	Higher
Total cash flows	Same	Same

	Finance lease	Operating lease
Current ratio (CA/CL)	Lower	Higher
Working capital (CA-CL)	Lower	Higher
Asset turnover (Revenue/TA)	Lower	Higher
Return on assets (NI/TA)	Lower	Higher
Return on equity (NI/SE)	Lower	Higher
Debt/Assets	Higher	Lower
Debt/Equity	Higher	Lower

Lessor

- **Sales-Type Lease**
  - 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= present value of the lease payments, a lease receivable.
    - COGS= the carrying value of the assets.
    - **Gross profit is recognized**.
    - Usually a manufacturer or dealer.
  - Interest portion of the lease payment is recognized as interest income.
  - In the cash flow statement
    - The interest portion of the lease payment is reported as an inflow from operating activities,
    - The principal reduction is reported as an inflow from investing activities

- **Direct Financing Lease**
  - The present value of the lease payments = the carrying value of the assets.
  - **No gross profit is recognized**.
  - Usually not a manufacturer or dealer.
  - Interest portion of the lease payment is recognized as interest income.
  - In the cash flow statement
    - The interest portion of the lease payment is reported as an inflow from operating activities.
    - The principal reduction is reported as an inflow from investing activities.
- **Operating lease**
  - Recognize the lease payment as rental income.
  - Depreciation.

Example:

A company leases a machine, 4 years, with annual payments of 100 millions. At the end of the lease, the machine is returned to the lessor, no salvage value, the appropriate interest rate is 6%, straight-line depreciation, the lease payments are made at the end of the year. Calculate the impact of the lease on the company's balance sheet, income statement and cash flow statement for each of the four years.

Income statement

	Direct financing lease	Operating Lease		
	Interest income	Rent	Depreciation	Total income
1	21	100	86.5	13.5
2	16	100	86.5	13.5
3	11	100	86.5	13.5
4	6	100	86.5	13.5
	54			54

Cash flow statement

	Direct financing lease		Operating lease
Year	CFO	CFI	CFO
1	21	79	100
2	16	84	100
3	11	89	100
4	6	94	100

- **Disclosures**
  - Both lessees and lessors are required to disclose lease information.
    - General description of the leasing arrangement.
    - The nature, timing, and amount of payments to be paid or received in each of the next five years. Lease payments after five years can be aggregated.
    - Amount of lease revenue and expense reported in the income statement for each period presented.
    - Amounts receivable and unearned revenues from lease arrangements.
    - Restrictions imposed by lease agreements.
  - Analysts often use the disclosures to estimate the ***off-balance-sheet liabilities*** of operating leases.

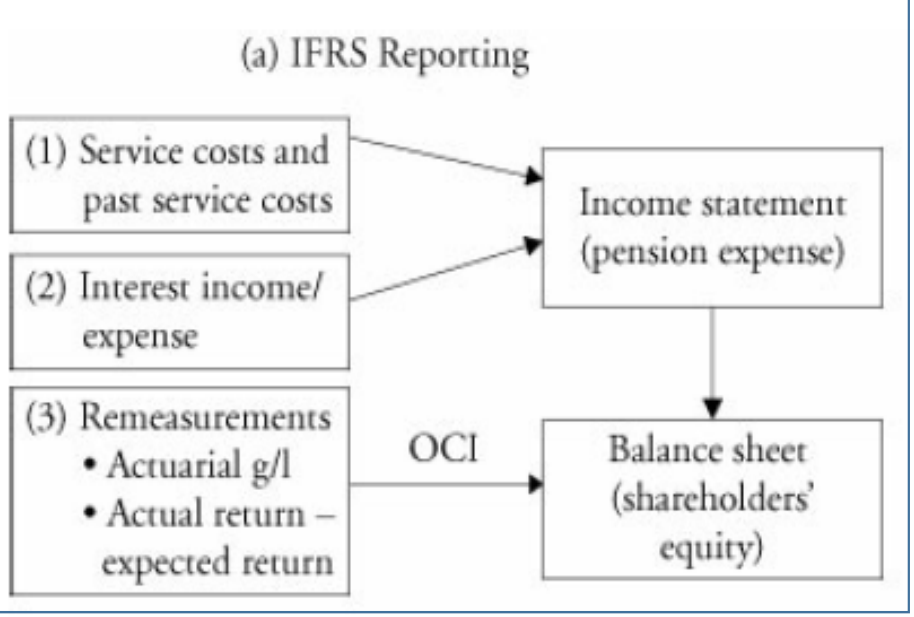
Pension plans

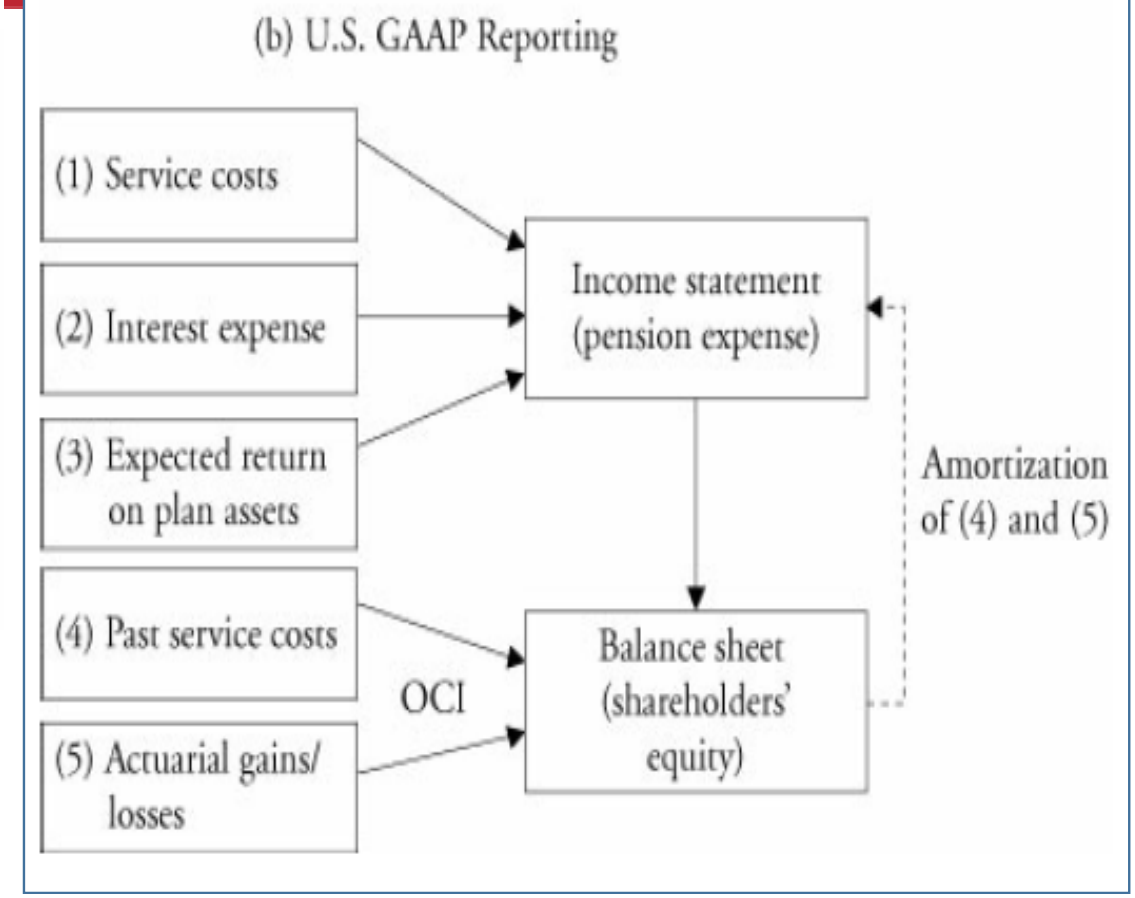
- **DC Plan (a defined contribution pension plan)** is a retirement plan whereby the firm contributes a certain sum each period to the employee's retirement account.
  - Contribution: employer and employee
  - Risk: **taken by employee**
  - B/S: *not* recognized on employer's B/S.

- **DB Plan (a defined benefit pension plan)** : the firm **promises** to make periodic payments to the employee after retirement.
  - Contribution: employer
  - Risk: **taken by employer**
  - B/S: recognized on employer's B/S.
    - Funded statues>0, **overfunded**, a net pension asset
      - The **asset ceiling** the present value of future economic benefits, such as available future refunds and reductions in future contributions
    - Funded statues<0, **underfunded**, a net pension liability.

- IFRS
  - **Service costs** are recognized in I/S.
    - Current service cost员工多工作一年,养老金增加额的现值
    - **Past service cost**养老金计划改变且追溯调整时产生PSC.
  - **Net interest expense/income** is recognized in I/S.
    - Interest expense: PBO_0*r
    - Interest income: FV_0*r
  - **Remeasurement** are recognized in **OCI**.
    - Actuarial gains and losses
    - Differences between the **actual return** on plan assets and **r(discount rate)**.

- **U.S.GAAP**
  - **Current service cost**
    - Recognized in I/S. 员工多工作一年,养老金现值增加额
  - **Interest expense**
    - PBO_0*r is recognized in I/S.
  - **Expected return**
    - FV_0*E(R) is recognized in I/S.
  - **Amortization**
    - **Amortization of past service cost**养老金计划改变且追溯调整时产生PSC.(PSC直接在OCI中确认，然后按员工后续工作年限摊销)
    - **Amortization of actuarial gains and losses**
      - Differences between the **actual return** on plan assets and **expected return**资产实际收益和预期收益之差
      - Changes in PBO arising from changes in actuarial assumptions.精算假设改变导致PBO的变化值。
      - *摊销部分入I/S,未摊销部分计入OCI*。


(a) IFRS Reporting
(1) Service costs and past service costs
(2) Interest income/ expense
(3) Remeasurements
• Actuarial g/l
• Actual return – expected return
OCI
Income statement (pension expense)
Balance sheet (shareholders' equity)


(b) U.S. GAAP Reporting
(1) Service costs
(2) Interest expense
(3) Expected return on plan assets
(4) Past service costs
(5) Actuarial gains/ losses
OCI
Income statement (pension expense)
Balance sheet (shareholders' equity)
Amortization of (4) and (5)

Ratios

- **Leverage ratios**
  - Debt-to-assets ratio= total debt/ total assets
  - Debt-to-capital ratio= total debt/ total debt + total equity
  - Debt-to-equity ratio= total debt/ total equity
  - Financial leverage ratio= average total assets/ average total equity
- **Coverage ratios**
  - Interest coverage= EBIT/ interest payments
  - Fixed charge coverage= (EBIT+ lease payments)/ (interest payments + lease payments)

Summary

- Bonds
  - Bonds Issued at Par
  - Bonds Issued at a Discount or Premium
- Leases
  - Operating lease and finance lease
- **Lessee**
  - **Operating lease**
  - **Finance lease**
- **Lessor**
- Pension plans
- Ratios

- **Study session 9**
  - **Los 32 Financial Reporting Quality**
  - Los 33 Financial Statement Analysis: applications

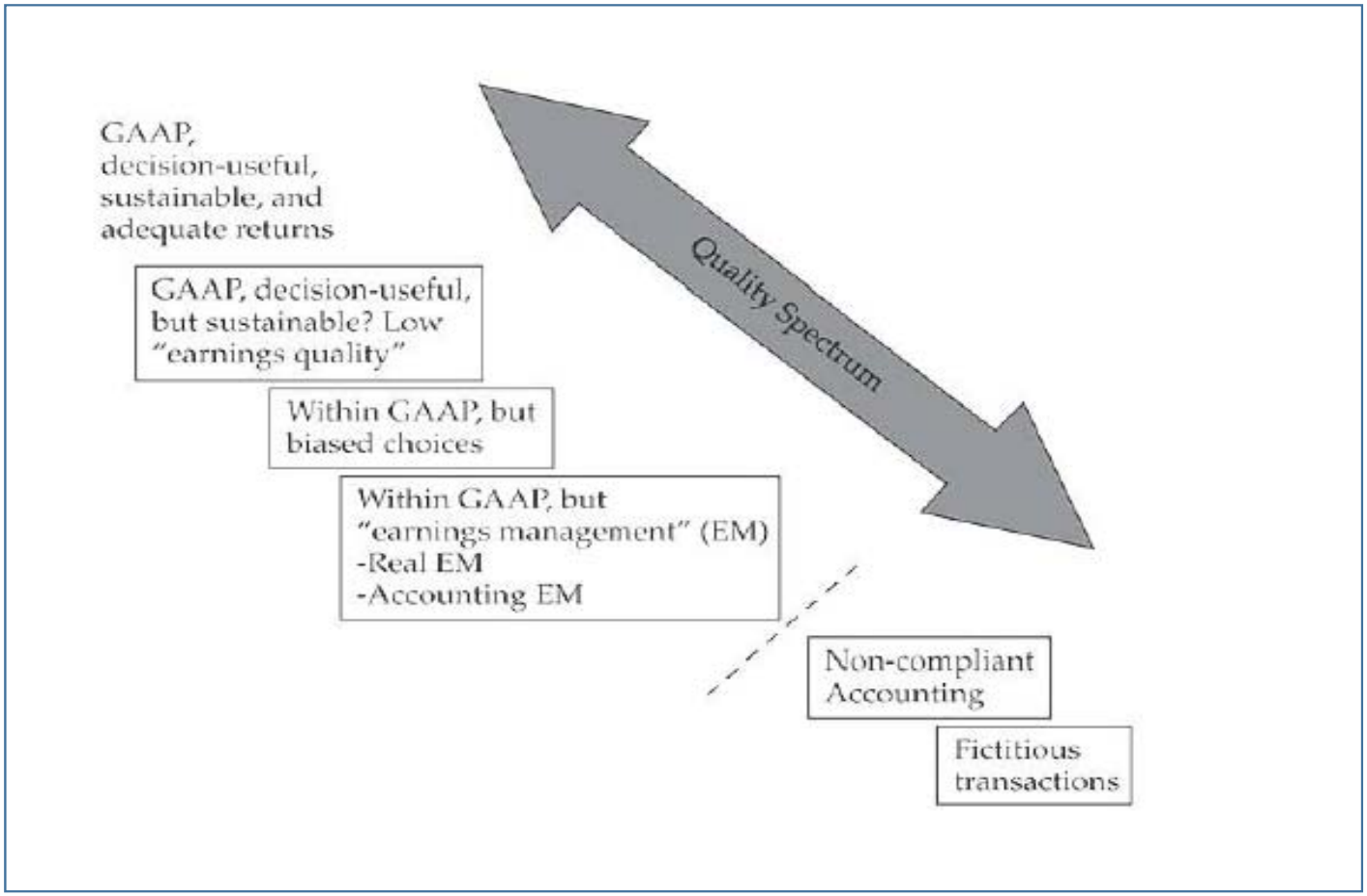
Concepts

- **Financial reporting quality**
  - High quality financial reporting must be ***decision useful***.
    - Relevance
    - Faithful
      - Completeness, neutrality, and the absence of errors.
    - Management's accounting choices are ***neutral***.
- **Quality of earnings**
  - **Sustainability**
  - The lowest quality
    - Departure from **accounting principles**

- Combination

	Financial reporting quality	
	Low	High
High earning quality	Low financial reporting quality impedes assessment of earnings quality and impedes valuation	High financial reporting quality enables assessment. High earnings quality increases company value.
Low earning quality		High financial reporting quality enables assessment. Low earnings quality decreases company value.

- **Categorization of the quality levels of financial reports**



- **Biased accounting choices**
  - **Conservative accounting**
    - Tend to decrease the company's reported earnings and financial position for the current period.
  - **Aggressive accounting**
    - Tend to increase reported earnings or improve the financial position for the current period.
  - Some managers employ conservative bias during periods when earnings are above target and aggressive bias during poor periods of below-target earnings to **artificially smooth earnings**.
    - Earnings smoothing is accomplished through **adjustment of accrued liabilities** that are based on management estimates.

Aggressive	Conservative
Capitalizing current period costs	**Expensing** current period costs
Longer estimates of the lives of depreciable assets	Shorter estimates of the lives of depreciable assets
Higher estimates of salvage values	Lower estimates of salvage values
Straight-line depreciation	Accelerated **depreciation**
Delayed recognition of impairment	Early recognition of *impairments*
Less accrual of reserves for bad debt	More **accrual** of reserves for bad debt
Smaller valuation allowances on deferred tax assets	Larger valuation allowances on deferred tax assets

- **Motivations** for aggressive accounting
  - Earnings guidance offered earlier by **management**.
    - Enhance manager's reputation and compensation.
    - Avoid violating debt covenants.
  - **Achieving particular benchmarks**, including prior-year earnings and analyst's forecasts, is very important.
    - Equity market effect
      - Building credibility with market participants and positively affecting stock price.
    - Trade effect, enhancing reputation with customers and suppliers.
- **Opportunities** to issuing low-quality financial reports
  - The company has weak internal controls.
  - The board of directors provides inadequate oversight.
  - Applicable accounting standards provide a large range of acceptable accounting treatments, provide for inconsequential penalties in the case of accounting fraud, or both.

Mechanisms

- Market regulatory authorities
  - Registration process for the issuance of new publicly traded securities.
  - Specific disclosure and reporting requirements, including periodic financial statements and accompanying notes.
  - An independent audit of financial reports.
  - A statement of financial condition (or management commentary) made by management.
  - A signed statement by the person responsible for the preparation of the financial reports.
  - A review process for newly registered securities and periodic reviews after registration.

- Auditors
  - An unqualified or “clean” audit opinion is not a guarantee that no fraud has occurred but only offers reasonable assurance that the financial reports have been “**fairly reported**” with respect to the applicable GAAP.
    - Limitation: **detecting fraud is not the objective of audits**.
  - Internal control

- **Non-GAAP measures**
  - **U.S.GAAP**
    - Display the most comparable GAAP measure with equal prominence.
    - Provide an **explanation** by management as to why the non-GAAP measure is thought to be useful.
    - **Reconcile** the differences between the non-GAAP measure and the most comparable GAAP measure.
    - Disclose other purposes for which the firm uses the non-GAAP measure. Include, in any non-GAAP measure, any items that are likely to recur in the future, even those treated as nonrecurring, unusual, or infrequent in the financial statements.
  - **IFRS**
    - Define and explain the relevance of such non-IFRS measures.
    - Reconcile the differences between the non-IFRS measure and the most comparable IFRS measure.

Accounting choices and estimates

- **Accounting methods**
  - Revenue recognition choices such as shipping terms (FOB shipping point versus FOB destination), accelerating shipments (channel stuffing), and bill-and-hold transactions.
  - Estimates of reserves for uncollectible accounts or warranty expenses.
  - Valuation allowances on deferred tax assets.
  - Depreciation methods, estimates of useful lives and salvage values, and recognition of impairments.
  - Inventory cost flow methods.
  - Capitalization of expenses.
    - **Understate expenses.**
  - Related-party transactions.

- **Accounting warning signs**
  - Revenue growth out of line with comparable firms, changes in revenue recognition methods, or lack of transparency about revenue recognition.
  - Decreases over time in turnover ratios (receivables, inventory, total asset).
  - Bill-and-hold, barter, or related-party transactions.
  - Net income not supported by operating cash flows.
  - Capitalization decisions, depreciation methods, useful lives, salvage values ***out of line with comparable firms***.
  - Fourth-quarter earnings patterns not caused by seasonality.
  - Frequent appearance of nonrecurring items.
  - Emphasis on non-GAAP measures, minimal information and disclosure in financial reports.

Summary

- Concepts
  - **Financial reporting quality**
  - **Quality of earnings**
  - Biased accounting choices
- **Mechanisms**
  - Market regulatory authorities
  - Auditors
  - Non-GAAP measures
- **Accounting choices and estimates**
  - Accounting methods
  - **Accounting warning signs**

- **Study session 9**
  - Los 32 Financial Reporting Quality
  - **Los 33 Financial Statement Analysis: applications**

Financial performance

- **Analysis**
  - ***Trends*** in a company's financial ratios
  - ***Differences*** between its financial ratios and those of its competitors or industry average ratios can indicate important aspects of a firm's business strategy.
    - It is important for an analyst to understand a subject firm's business strategy.
      - Cutting cost, analyze gross margin.
- **Forecast**
  - Top-down approach
    - GDP growth
    - Industry growth
    - Firm's growth
  - Bottom-up approach

- Credit analysts
  - **Three Cs**
    - Character: the firm management's professional reputation and the firm's history of debt repayment
    - Collateral: The ability to pledge specific collateral reduces lender risk.
    - Capacity to repay: requires close examination of a firm's financial statements and ratios.
  - **Credit rating agencies**
    - Scale and diversification
    - Operational efficiency
    - Margin stability
    - **Leverage**

- **Find potential equity investments**
  - Potentially attractive equity investments can be identified by screening a universe of stocks, using minimum or maximum values of one or more ratios. Which (and how many) ratios to use, what minimum or maximum values to use, and how much importance to give each ratio all present challenges to the analyst.
    - Backtesting

Analyst adjustments

- **Inventory accounting**
  - FIFO ending inventory=LIFO ending inventory + LIFO reserve
  - FIFO COGS=LIFO COGS-change in the LIFO reserve
- Depreciation
- Capitalization
- Off-balance-sheet financing

Example:

Albart Industries reports the following using the **LIFO inventory costing method** at the end of 20X2:

- Current assets $10 million
- Current liabilities $5 million
- 20X1 LIFO reserve $500,000
- 20X2 LIFO reserve $700,000

A. What is the **current ratio** at the end of 20X2 before and after the appropriate adjustment for comparability to a similar firm that reports using the FIFO inventory valuation method?

B. What is the appropriate adjustment to the firm's 20X2 **COGS** to make the firm's income statement comparable to that of a firm that reports under the FIFO method?

Solution:

A. Before adjustment, current ratio = CA / CL = 10 / 5 = 2 at year-end 20X2.

Adding the LIFO reserve to current assets increases the current ratio:

adjusted current ratio = 10.7 / 5 = 2.14

B. The appropriate adjustment is to subtract the ***increase in the LIFO reserve from COGS***. *COGS should be* reduced by $700,000 – $500,000 = $200,000. This will increase gross profit, operating profit, and net income compared to LIFO reporting.

Summary

- **Financial performance**
  - Analysis
  - Forecast
  - Credit analysts
  - Find potential equity investments
- **Analyst adjustments**

THANKS