Equity 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

Credit analysis

- Z – score

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

A = WC / TA
B = RE / TA
C = EBIT / TA
D = MV of Equity / BV of Debt
E = Revenue / TA

If Z<1.8 ⟹ Bankruptcy

Summary

- **Importance:** ☆☆☆
- **Content:**
  - DuPont analysis of return on equity.
  - Ratios used in equity analysis and credit analysis.
- **Exam tips:**
  - 使用杜邦分析分解ROE。（计算题）
  - 股票估值和信用分析中所用到的财务比率。（结合权益）

Inventory Accounting and Inventory Valuation Method

Tasks:

- Distinguish between costs included in inventories and costs recognized as expenses in the period in which they are incurred.
- Describe different inventory valuation methods (cost formulas).

Inventory accounting

Cost of good sold (COGS)

COGS = beginning inventory + purchases - ending inventory

- Purchase cost contains two parts: Inventory and COGS
- When the inventory sold, inventory goes to income statement as COGS

Inventory accounting

Product costs

- 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.

Inventory accounting

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

Firms must select a cost flow method (under GAAP or 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. (FIFO)
  - Weighted average cost.
- Under GAAP, the permissible methods are:
  - Same methods under IFRS
  - Last-in, first-out. (LIFO)

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 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.

Inventory valuation method

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.*

Inventory valuation method

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-Example

Purchase A, B , C, D on Jan 1, 2, 3, 4 respectively for $5, $6, $7, $8 and then sold A,C on Jan 30

	Ending Inventory	COGS
Specific Identification	6+8=14	5+7=12
FIFO	7+8=15	5+6=11
LIFO	5+6=11	7+8=15
Weight Ave	(5+6+7+8)/4*2=13	(5+6+7+8)/4*2=13

Summary

- **Importance:** ☆☆☆
- **Content:**
  - Accounting for inventories.
  - Inventory valuation methods.
- **Exam tips:**
  - 辨析存货的资本化和费用化。（存货的资本化过程）
  - 熟练掌握和对比四种存货计量方法。（主要是FIFO和LIFO）

Analysis of Inventory Valuation Method and Periodic & Perpetual Assumption

Tasks:

- Calculate and compare cost of sales, gross profit, and ending inventory using different inventory valuation methods and using perpetual and periodic inventory systems.
- Calculate and explain how inflation and deflation of inventory costs affect the financial statements

FIFO V.S. LIFO

Being the time of raising price

- *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.*

FIFO V.S. LIFO

In periods of *rising prices*

Statements	LIFO	FIFO
Income statement	Higher COGS	Lower COGS
	Lower EBIT	Higher EBIT
	Lower Tax	*Higher Tax*
	Lower net income	Higher net income
Balance sheet	Lower inventory balance	Higher inventory balance
	Lower working capital	Higher working capital
Cash flow statement	*Higher CFO (Less tax paid)*	*Lower CFO (More tax paid)*

FIFO V.S. LIFO

In periods of *rising prices*

Ratios	LIFO	FIFO
Profitability	Lower gross and net margins	Higher gross and net 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 valuation method

Periodic inventory system

- Inventory value and COGS are determined at the end of an accounting period.
- Need a purchase account.

Perpetual inventory system

- 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*

Inventory valuation method

Calculate COGS and ending inventory under the FIFO and LIFO cost flow method using the two inventory systems.

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

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

FIFO (Perpetual)

Jan 12 sale of 4 units consists of

Units	From	Costs	$
2	Jan 1 beginning inventory	2 units @ $2each	4
2	Jan 7 purchase	2 units @$3 each	6

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

Jan ending inventory = 3 units @$5 each = $15

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

LIFO (Perpetual)

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

Jan 29 sale of 3 units consists of

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

Jan ending inventory = $12

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

Summary

- **Importance:** ☆☆☆
- **Content:**
  - Calculation of ending inventory and COGS.
  - Analysis of financial statement in inflationary and deflationary environment.
- **Exam tips:**
  - 两种存货计量假设体系下计算期末存货以及销货成本。
  - 辨析不同的存货计量方法在通胀和通缩的环境下是如何影响财务报表的。

Impairment of Inventory under IFRS & GAAP

Tasks:

- Describe the measurement of inventory at the lower of cost and net realisable value.
- Explain issues that analysts should consider when examining a company's inventory disclosures and other sources of information.

Measurement of inventory

Inventory in IFRS

- Inventory is the lower of the cost or ***Net realizable value***.
  - NRV = Selling price – Selling cost
- If cost > NRV
  - Inventory is written down to NRV on B/S.
  - A loss is recognized in I/S. (COGS)
  - ***Can be written up and a gain is recognized in I/S.*** (COGS)

Measurement of inventory

Inventory in U.S. GAAP

- Inventory is the lower of the cost or ***market***.
  - If replacement cost > NRV (net realizable value) market = NRV
  - If replacement cost < NRV – normal profit margin market = NRV – normal profit margin
  - If NRV – normal profit margin < replacement cost < NRV market = replacement cost
- If cost > market
  - Inventory is written down to market on B/S.
  - A loss is recognized in I/S. (COGS)
  - ***No subsequent written up is allowed.***

Inventory valuation under GAAP and IFRS

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 ?

Inventory valuation under GAAP and IFRS

Answer:

- Under IFRS
  - NRV = $225 - 22 = $203
  - Original cost = $210
  - The carrying value should be the lower ($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 (*loss of $13 in I/S*)

Inventory disclosure

Similar under U.S. GAAP and IFRS

- Cost flow method used (LIFO, FIFO, etc.)
- The carrying value of inventory (Fair value – selling costs)
- COGS for the period
- The amount of inventory *write downs*
- The *reversal* of inventory write downs (*IFRS only*)

Summary

- **Importance:** ☆☆☆
- **Content:**
  - Measurement of inventory at the lower of cost and net realizable value.
  - Presentation of and disclosures relating to inventories.
- **Exam tips:**
  - 美国和国际准则下存货的减值测试以及减值损失计量。
  - 了解与存货相关的披露要求。

Changes in Inventory Valuation, LIFO Reserve and LIFO Liquidation

Tasks:

- Explain LIFO reserve and LIFO liquidation and their effects on financial statements and ratios.
- Convert a company's reported financial statements from LIFO to FIFO for purposes of comparison.
- Analyze and compare the financial statements of companies, including companies that use different inventory methods

Changes in inventory valuation

Inventory changes - Changes in accounting policy

From other methods to LIFO → ***Prospective application***

Other changes → ***Retrospective application***

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

Activity Ratios and Inventory Method

Inventory turnover ratio (COGS/avg. inventory)

- With LIFO, numerator reflects current prices; denominator reflects historical prices, *not useful*
- With FIFO, numerator reflects historical prices; denominator reflects current prices, may be *more useful than LIFO.*

Best method: Use *LIFO COGS* and *FIFO average inventory* (current cost method)

Solvency Ratios and Inventory Method

FIFO produces a higher value of equity because of the higher inventory value on the left side of the balance sheet.

- Under FIFO, the debt ratio and debt-to-equity ratio are lower (and more meaningful).
- Under LIFO, analysts should add the *LIFO reserve* to both inventory and equity to generate more meaningful solvency ratios.

LIFO Reserve

LIFO Reserve

- The difference between the reported LIFO inventory carrying amount and the inventory amount that would have been reported if the FIFO method had been used.
- LIFO Reserve = FIFO Inventory – LIFO Inventory

LIFO Liquidation

LIFO Liquidation

- A LIFO liquidation incurs when purchased volume is less sales volume. Or, the decrease in volume or quantity of inventory.
- In this case, the prices for goods being sold are no longer recent prices.

LIFO Liquidation

LIFO Liquidation (If Price Is Rising)

- COGS does not reflect current costs.
- LIFO reserve may decline.
- An analyst should adjust COGS for decrease in LIFO reserve.

LIFO & FIFO Conversion

LIFO to FIFO Conversion

- $Inventory_{FIFO} = Inventory_{LIFO} + LIFO\ Reserve$
- $COGS_{FIFO} = COGS_{LIFO} - \Delta LIFO\ Reserve$

Income Statement Changes

- $NI_{FIFO} = NI_{LIFO} + \Delta\ LIFO\ Reserve \times (1 - Tax)$
- $COGS_{FIFO} = COGS_{LIFO} - \Delta LIFO\ Reserve$

Balance Sheet Changes

- $Inventory_{FIFO} = Inventory_{LIFO} + LIFO\ Reserve$
- $*R/E_{FIFO} = R/E_{LIFO} + LIFO\ Reserve_{Ending} \times (1 - Tax)$
- $*Cash_{FIFO} = Cash_{LIFO} - LIFO\ Reserve_{Ending} \times (Tax)$

Summary

- **Importance:** ☆☆☆
- **Content:**
  - LIFO reserve and LIFO liquidation.
  - LIFO & FIFO Conversion.
- **Exam tips:**
  - 此部分对应今年考纲新增部分，掌握LIFO和FIFO的互相转化，并理解如何影响利润表及资产负债表。

Capitalizing vs. Expensing

Tasks:

- Distinguish between costs that are capitalized and costs that are expensed in the period in which they are incurred .
- Compare the financial reporting of the following types of intangible assets: purchased, internally developed, acquired in a business combination

Capitalizing vs. Expensing

How to treat an expenditure depending on the nature of the expenditure

- Capitalize as an asset on the B/S
- Recognize as an expenses in the I/S

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***

Capitalizing vs. Expensing

<table>
<tr><td rowspan="2">Is there any future economic benefit for the expenditure?</td><td rowspan="2">YES</td><td rowspan="2">Recognize assets in B/S</td><td colspan="2">Inventory</td><td>COGS</td></tr>
<tr><td rowspan="2">Non current assets</td><td>Tangible assets</td><td>Depreciation</td></tr>
<tr><td>Intangible assets</td><td>Amortization</td></tr>
<tr><td>NO</td><td>Recognized expenses in the income statement when incurred</td><td colspan="2">eg:
Selling expenses
Administrative cost
General expenses…</td><td>Net Income</td></tr>
</table>

Capitalizing vs. Expensing

Statements	Items	Capitalizing	Expensing
B/S & Ratios	Total assets	Higher	Lower
	Total equity	Higher	Lower
	Leverage ratio (D/A, D/E)	Lower	Higher
I/S & Ratios	Income volatility	Lower	Higher
	Net income – first year (ROA, ROE)	Higher	Lower
	Net income – later year (ROA, ROE)	Lower	Higher
Cash flow statement	Total cash flow	Same	Same
	CFO	Higher	Lower
	CFI	Lower	Higher

Capitalizing Interest Costs

Under 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.

	Interest expense	I/S impact	Net income	Interest coverage ratio	CFI	CFO
First year	No interest expense	No	Higher	Higher	Under state	Over state
Later year		Dep expense	Lower	Lower		

Capitalize or Expense ?

Purchase *Ready for use* *The end of useful life*

- ✓ *Purchase price*
- ✓ *Tax, freight and insurance*
- ✓ *Delivery*
- ✓ *Installation*
- ✓ *Testing*

→ *Capitalize*

- ✓ *Depreciation*
- ✓ *Repair and maintenance*
- ✓ *Staff training*

→ *Expense*

- ✓ *Asset Enhancement Costs*

→ *Capitalize*

Intangible Assets

Long – term assets without physical substance

- Identifiable intangible assets (*can be purchased separately*)
  - Patents
  - Trademarks
  - Copyright purchased externally
- Unidentifiable intangible asset
  - Goodwill (*cannot be purchased separately and may have an indefinite life*)
- Internally generated (*Expensed as incurred*)
  - Cannot be capitalized on balance sheet
  - Research and Development cost *under U.S. GAAP*

Intangible Assets

Amortization of intangible asset

- Intangible asset with a finite useful life
  - Amortization over useful life (*SL, No salvage value*)
- Intangible asset with an indefinite useful life
  - Annual impairment test

Type of R&D expenditure under IFRS and GAAP

- *Research* should be expensed as incurred (*IFRS & GAAP*)
- *Development*
  - **IFRS:** Capitalize if certain criteria are met.
  - **GAAP:** Expense as incurred except for *cost to develop software.*

Intangible Assets

Development cost under U.S.GAAP

- For sales to others
  - *Expensed* as incurred.
  - Once *economic feasibility is established*, subsequent production costs *can be capitalized*.
- For own internal use
  - *Capitalized*

Summary

- **Importance:** ☆☆☆
- **Content:**
  - Capitalizing versus expensing measurement.
  - Intangible assets.
- **Exam tips:**
  - 辨析资本化和费用化的会计处理。
  - 辨析资本化和费用化对于财务报表和比率的影响。
  - 记忆无形资产的分类以及做账特征。（Goodwill的特征很重要）

Accounting for Depreciation

Tasks:

- Calculate depreciation expense.
- Describe how the choice of amortization method and assumptions concerning useful life and residual value affect financial ratios.

Depreciation

Two important depreciation terms

- 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*.
- 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 calculation

Three methods to calculate depreciation

- **Straight-line depreciation**

$$Depreciation\ expense = \frac{cost - residual\ value}{useful\ life}$$

- **Accelerated depreciation**

$$Depreciation\ expense = \frac{2}{useful\ life} \times (original\ cost - accumulative\ depreciation)$$

- **Units of production**

$$Depreciation\ expense = \frac{output\ units\ in\ the\ period}{life\ in\ output\ units} \times (cost - residual\ value)$$

Practice for depreciation calculation

Miguel Rodriguez of MARIO S.A., an Uruguayan corporation, is computing the depreciation expense of a piece of manufacturing equipment for the fiscal year ended 31 December 2009. the equipment was acquired on 1 January 2009. Rodriguez gathers the following information:

Cost of the equipment	$1,200,000
Estimated residual value	$200,000
Expected useful life	8 years
Total production capacity	800,000 units
Production in FY2009	135,000 units

Calculate the depreciation expense recognized in the income statement for FY2009 using three depreciation methods.

Practice for depreciation calculation

Three methods to calculate depreciation

- **Straight-Line**
  ($1,200,000 - $200,000)/8 years = $125,000 p.a.
- **DDB**
  2/8 × $1,200,000 = $300,000
- **Units – of – production**
  ($1,200,000 - $200,000) × (135,000 units / 800,000 units)
  = $168,750

Depreciation effect

Depreciation impacts in early years

Items	Straight line	DDB
Depreciation expense	Lower	Higher
Net income	Higher	Lower
Assets	Higher	Lower
Equity	Higher	Lower
ROA	Higher	Lower
ROE	Higher	Lower
Total asset turnover	Lower	Higher
Cash flow - Tax	Same	Same

Accounting treatments of depreciation

Allocation of depreciation expense

- *COGS* ⇒ **Affect gross profit margin**
- *SG&A* ⇒ **Affect operating profit margin**

longer useful life & higher residual value

- *Lower* depreciation expense and *higher* net income

Estimation of residual value under GAAP & IFRS

- **U.S. GAAP:** Downward only
- **IFRS:** Allowed to adjusted residual value either upward or downward.

Summary

- **Importance:** ☆☆☆
- **Content:**
  - Calculate depreciation and amortization expense.
  - Analysis of Depreciation Effect.
- **Exam tips:**
  - 掌握三种折旧方法的计算。（定量）
  - 了解不同折旧方法是如何影响财务报表和比率的。（定性）
  - 使用年限和残值是如何影响折旧费用和净利润的。

Impairment & Revaluation

Tasks:

- Explain and evaluate how impairment, revaluation, and derecognition of PP&E.
- Describe the revaluation model.

Impairment of Long-Lived Assets

Impairment of two assets classes

- **Tangible assets**
  - **Held for use** ⇒ **Impairment test**
  - **Held for sale**
    - ✓ **No depreciation**
    - ✓ **Immediate impairment test if *Carrying value > NRV***
- **Intangible assets (eg: goodwill…)**
  - **Held for use** ⇒ **Annual impairment test**
  - **Held for sale**
    - ✓ **No amortization**
    - ✓ **Immediate impairment test if *Carrying value > NRV***

Impairment in U.S. GAAP

- Step one: Impairment test

Carrying value of assets	>	Undiscounted future cash flows generated by assets

- Step two: Loss measurement

Carrying value of assets	-	Fair market value or PV of future CF

Impairment in IFRS

Impairment test

Carrying value of assets	>	Recoverable amount

The higher of	
NRV (selling price – selling cost)	Value in use (PV of future cash flows)

Practice for impairment test

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.

Practice for impairment test - Answer

Under 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.

Practice for impairment test - Answer

Under 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
- 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 in I/S.

Impairment effect

Impairment Effects	
Assets	Decrease
Equity	Decrease
Debt / Equity	Increase
Current income, ROA, ROE	Decrease
Future income, ROA, ROE	Increase
Future depreciation expense	Decrease
Future asset turnover ratios	Increase
Cash flow	Same

Recoveries for Impairment

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.*

Revaluation of assets

Revaluation in U.S. GAAP and IFRS

GAAP	IFRS
Cost model	Cost model & Revaluation

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.

Revaluation of assets

US GAAP:

Company only can choose depreciated cost method

- Long-lived assets are reported on the balance sheet at depreciated cost .
- Depreciated cost equals original cost less accumulated depreciation and any impairment charges.
- Impairment loss reduce the asset value and cannot reversal generally except for ***asset held for sale***.

Revaluation of assets

Under IFRS:

Company can choose depreciated cost or revaluation model

- Under depreciated cost
  - Same as U.S. GAAP, except for previous impairment can be recovery to original amount
- Under Revaluation model
  - B/S asset reduced to FMV
  - Loss taken to I/S
  - Subsequent reversals（逆转）of value recognized in I/S up to historical cost
  - Increase in value above historic cost taken to revaluation surplus (OCI-equity)

Investment property

Investment property: Held for the purpose of earning rental income or capital appreciation.

IFRS VS U.S. GAAP

- U.S. GAAP does not distinguish investment property from other kinds of long-lived assets.

Disclose: Fair value model or cost model.

- Fair value model: Determination of fair value
- Cost model: Depreciation method, useful lives, fair value.

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 (Investment Property Only)

- The fair value model is different from the revaluation model.
  - 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*.

Disposal of Long-Lived Assets

When a long-lived asset is sold

- Difference between the sale proceeds and the carrying value of the asset is reported as a G/L, included in income *statement.*

When a long-lived asset is abandoned

- Carrying value is removed from the B/S, loss is recognized in income statement.

When a long-lived asset is exchanged

- G/L is computed by comparing the book value of the old asset with the fair value of the old asset (or fair value of new asset).

Summary

- **Importance:** ☆☆☆
- **Content:**
  - Impairment rules in U.S. GAAP and IFRS.
  - Revaluation of long lived assets in U.S. GAAP and IFRS.
- **Exam tips:**
  - 掌握美国准则和国际准则的减值测试以及减值损失的计量方法。（考查计算）
  - 长期资产的转回规则。（重点掌握国际准则下的三个模型）

Accounting for Lease

Tasks:

- Explain and evaluate how leasing rather than purchasing assets affects financial statements and ratios.
- Explain and evaluate how finance leases and operating leases affect financial statements and ratios.

Reasons to Lease

Alternative to borrowing and purchasing asset.

- Short period of use
- Cheaper financing (potentially)
- No down payments
- Fixed rates
- May have less covenants
- Less risk of obsolescence
- Potential financial reporting advantage (operate lease)
- Tax advantages

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

Classification of leases

Two types of leases (Classification)

- **Operating lease**
  - An operating lease is essentially a rental arrangement.
  - *No asset or liability is reported* by the lessee.
  - Periodic *lease payments are simply recognized as rental expense in the income statement*.

Classification of leases

Two types of leases (Classification)

- **Finance lease / Capital lease (U.S.)**
  - A finance lease is, in substance, a purchase of an asset that is financed with debt.
  - 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 lease - Lessor

Two conditions to be satisfied:

- Cost certain
  - There are no significant uncertainties about the amount of reimbursable costs yet to be incurred by the lessor.
- Assurance of receiving amount of lease
  - The collectivity of lease payments is predictable.

Lessee	Lessor	
Operating lease	→	Operating lease
Finance lease	Two conditions are not satisfied	→ Operating lease
	Two conditions are satisfied	Capital lease • If manufacturer: *Sales type lease* • If for financing: *Direct financing lease*

Classification of lease - Lessor

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.

- Similar treatment to a sales-type lease is allowed under IFRS for finance leases originated by manufacturers or dealers.

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.

Sales Type Lease

In the cash flow statement

- The interest portion of the lease payment is reported as an inflow from operating activities.
- Principal reduction is reported as an inflow from investing activities.

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*
- As the lease payments are received, the principal portion of each payment reduces the lease receivable.

Direct financing lease

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.
- principal reduction is reported as an inflow from investing activities.

Accounting for lease - Lessor

Statements	Sale – type lease	Direct – financing lease
At inception of I/S	Gross profit = Sales – COGS Sales = PV of lease payments COGS = Cost of asset – PV of salvage value	No gross profit is recognized
At inception of B/S	Lease receivable = PV of lease payments + PV of salvage value	Lease receivable = Cost of the assets
Periodic I/S	Interest income (Implicit interest rate ×Beginning lease receivable)	
At inception of CFS	No effect	
Periodic CFS	CFO: Cash inflow CFI: Cash inflow	

Operating lease - Lessor

Operating lease

- If the lease is treated as an operating lease, the lessor simply recognizes the lease payment as rental income.
- The lessor will keep the leased asset on its balance sheet and depreciate it over its useful life.

Total income over the life of the lease is the same for an operating lease and a direct financing lease.

- In the *early years of the lease*, the income reported from the *direct financing lease is higher* than the income reported from the operating lease.

Operating lease - Lessor

A company purchases an asset for $69,302 to lease to B company for four years with an annual lease payment of $20,000 at the end of each year. The implied interest rate in the lease is 6%.

Direct financing lease		Operating lease		
Year	Interest income	Rental income	Depreciation expense	Operating lease income
1	4158	20000	17325.5	2674.5
2	3208	20000	17325.5	2674.5
3	2200	20000	17325.5	2674.5
4	1132	20000	17325.5	2674.5
Total	$10698			$10698

Operating lease - Lessor

Total cash flow is the same for an operating lease and a direct financing lease. However, cash flow from operations is higher with the operating lease.

Year	Direct finance lease		Operating lease
	CFO	CFI	CFO
1	4,158	15,842	20,000
2	3,208	16,792	20,000
3	2,200	17,800	20,000
4	1,132	18,868	20,000

Summary

- **Importance:** ☆☆☆
- **Content:**
  - Classification of Lease.
  - Accounting for lease.
- **Exam tips:**
  - 租赁在资产端的会计处理。（主要研究出租人，承租人端在后续章节中介绍）
  - 租赁如何影响财务报表以及相应的财务比率。

Tax Reporting & Financial Reporting

Tasks:

- Define key terms for both tax and financial reporting.
- Explain how deferred tax liabilities and assets are created.

Terms from the Tax Reporting

Taxable income

- Amount of income subject to taxes

Taxes payable

- Actual tax liability for the current period

Income tax paid

- Actual cash flow for taxes

Tax loss carry forward

- A current or past loss that can be used to reduce taxable income in the future. Can result in a *deferred tax asset*.

Tax base

- Net amount of an asset or liability used for tax reporting purposes.

Terms from the Financial Reporting

Accounting profit

- Pre tax financial income, 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).

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

Deferred tax liabilities (DTL)

- Balance sheet item created when *taxes payable < income tax expense*, due to temporary differences.

Deferred tax asset (DTA)

- Balance sheet item created when *taxes payable > income tax expense*, due to temporary differences.

Terms from the Financial Reporting

Carrying value

- ✓ Balance sheet value of an asset or liability.

Note that both DTLs and DTAs are presented on the balance sheet, *not netted.*

Income Tax Accounting

Sources of differences

- Timing differences
- Permanent differences

Sources of Timing Differences

- Accrual vs. modified cash accounting.
- Differences in reporting methods and estimates.

Income Tax Accounting

Financial reporting

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Revenue	600000	600000	600000	600000	600000	3000000
SG&A	(300000)	(300000)	(300000)	(300000)	(300000)	(1500000)
Depreciation expense	(100000)	(100000)	(100000)	(100000)	(100000)	(500000)
Earning before tax	200000	200000	200000	200000	200000	1000000
Income tax expense (30%)	(60000)	(60000)	(60000)	(60000)	(60000)	(300000)
Net income	140000	140000	140000	140000	140000	700000

Income Tax Accounting

Tax reporting

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Revenue	600000	600000	600000	600000	600000	3000000
SG&A	(300000)	(300000)	(300000)	(300000)	(300000)	(1500000)
Tax Depreciation expense	(220000)	(132000)	(80000)	(50000)	(18000)	(500000)
Earning before tax	80000	168000	220000	250000	282000	1000000
Income tax expense (30%)	(24000)	(50400)	(66000)	(75000)	(84600)	(300000)
Net income	56000	117600	154000	175000	197400	700000

Income Tax Accounting

	I/S	Year 1	Year 2	Year 3	Year 4	Year 5
财务税费	Income tax expense	60000 -	60000 -	60000 -	60000 -	60000 -
税务税费	Current tax expense	24000 =	50400 =	66000 =	75000 =	84600 =
产生递延税(增量)	Deferred tax expense	36000	9600	(6000)	(15000)	(2460 0)
	B/S	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
期末递延税(存量)	Deferred tax liability	36000	(36000+ 9600) 45600	(45600- 6000) 39600	(39600- 15000) 24600	(24600 -24600) 0

Income Tax Accounting

Tax reporting

- Taxable income = Taxable revenue – Tax deductible expense
- Taxes payable = Taxable income ×Tax rate
- Income tax paid = Actual cash outflow for income tax.

(*Actual cash outflow for tax in CFS*)

Financial reporting

- Pretax income (Accounting profit) = Earning before tax
- Income tax expense = Taxes payable + △ DTL - △DTA

Summary

- **Importance:** ☆☆
- **Content:**
  - Terminology of tax and financial reporting.
  - Difference between tax and financial reporting.
- **Exam tips:**
  - 掌握财务报表和税务报表（主要是利润表）使用的术语。
  - 了解财务报表和税务报表的差异以及导致递延税的过程。

Calculation for Deferred Tax

Tasks:

- Calculate the tax base of a company's assets and liabilities.
- Balance Sheet approach and Income Statement approach to calculate DTA or DTL.

Balance sheet approach to deferred tax issue

Balance sheet approach

- Identify *Accounting base* and *Tax base* for every asset and liability item on balance sheet.
- 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

DTA and DTL Example

Depreciable Assets

- A company depreciates a $21,000 asset use straight-line over three years for accounts:
- Each year depreciation expense is 7000.
- Tax uses accelerated depreciation method in it's tax returns:
- First year depreciation expense is 14000
- Second year depreciation expense is 70000
- Sales revenue is 20000 for each year and tax rate is 40%

DTA and DTL Example

Income statement approach

Year one:

- Accounting profit: 20000-7000=13000
- Taxable income: 20000-14000=6000
- Tax Payable: 6000*40%=2400 Income tax expense 13000*40%=5200
- Under tax base, Company need to pay 2800 more in the future compare to the accounting base : 5200-2400=2800
- 2800为第一年财务和税务下的税费之差，为当期变量

DTA and DTL Example

Income statement approach

Year two：

- Accounting profit：20000-7000=13000
- Taxable income：20000-7000=13000
- No addition DTL or DTA due to same accounting profit and taxable income

DTA and DTL Example

Income statement approach

Year three：

- Accounting profit：20000-7000=13000
- Taxable income：20000-0=20000
- Tax payable: 20000*40%=8000
- Income tax expense 13000*40%=5200
- DTA=8000-5200=2800
- Temporary difference eliminated at year three.

DTA and DTL Example

Balance sheet approach

Year one：

- Tax base = cost – accumulated tax allowable depreciation=7000
- Carrying value = cost – accumulated depreciation=14000
- Difference（14000-7000）*40%=2800 DTL
- Less tax base lead to less depreciation expense under tax reporting and need to pay more compare to financial reporting
- 2800 is the B/S ending value

DTA and DTL Example

Balance sheet approach

Year two：

- Tax base = cost – accumulated tax allowable depreciation =0
- Carrying value = cost – accumulated accounting depreciation =7000
- Difference（7000-0）*40%=2800 DTL
- No new DTL incurred during the year

DTA and DTL Example

Balance sheet approach

Year three：

- Tax base = cost – accumulated tax allowable depreciation =0
- Carrying value = cost – accumulated accounting depreciation =0
- Difference（0-0）*40%=0
- At three year end, accounting base and tax base is no difference.

Another Example

Accounting Base & Tax Base – Assets

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

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

Summary

- **Importance:** ☆☆
- **Content:**
  - Calculation of tax base and accounting base.
  - Balance Sheet and Income Statement approach.
- **Exam tips:**
  - 计算资产和负债的税基。
  - 使用资产负债表法计算当期的存量递延税。

Calculation for Income Tax Expense

Tasks:

- Describe the situations that will create DTA or DTL.
- Calculate income tax expense.