Chapter 8

LONG-LIVED ASSETS

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LEARNING OUTCOMES

- distinguish between costs that are capitalized and costs that are expensed in the period in which they are incurred;
- explain and evaluate how capitalizing versus expensing costs in the period in which they are incurred affects financial statements and ratios;
- describe the different depreciation/amortization methods for property, plant, and equipment, and intangible assets and calculate depreciation expense/amortization expense;
- describe how the choice of depreciation/amortization method and assumptions concerning useful life and residual value affect depreciation/amortization expense, financial statements, and ratios;
- describe the revaluation model;
- explain the impairment of property, plant, and equipment and intangible assets;
- explain the derecognition of property, plant, and equipment and intangible assets;
- describe the financial statement presentation of, and disclosures relating to, property, plant, and equipment and intangible assets;
- compare the financial reporting of investment property with that of property, plant, and equipment.

CONTENTS

PPE

Right-of-use

COSTS THAT ARE CAPITALIZED AND COSTS THAT ARE EXPENSED WHEN INCURRED

- **Long-lived assets** (non-current assets or long-term assets)
  - Assets that are expected to provide economic benefits over a future period of time, typically greater than one year.
  - May be tangible (plant, property, and equipment, or PP&E), intangible (patents, trademarks), or financial assets.
- At acquisition, capitalize (included in the assets shown on the balance sheet):
  - purchase price and
  - expenditures necessary to prepare asset for intended use.
- Subsequent expenditures are:
  - capitalized if expected to provide benefits beyond one year (extend life or capacity).
  - expensed otherwise.

ACQUISITION OF PP&E: EXAMPLE

Which of the following expenditures are capitalized?

- Related to purchase of 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 — we need to know that it works
  - ✗ €100 to train staff on maintaining the machine — not make it ready to use / prolong its life
  - ✓ €350 paid to a construction team to reinforce the factory floor and ceiling joists to accommodate the machine's weight → if not do this, it will breakdown

- Maintenance:
  - ✓ €1,500 for roof repair; expected to extend useful life of the factory by 5 years.
  - ✗ €1,000 for repainting exterior of the factory and adjoining offices; repainting neither extends the life of factory and offices nor improves their usability.

A	=	L	+	E
+ 1,500 net PPE				
- 1,500 cash				
- 1,000 cash				-1000 maintainance expense

ACQUISITION OF PP&E- BORROWING COSTS

E.g. borrow money to build a plant
can capitalize this as cost of assets (PPE) ⇒ then depreciate it over time
your asset
identify

- Borrowing costs incurred *directly* related to the construction of an asset are generally capitalized.
  - For sales (the building is classified as inventory for homebuilder)
    - The capitalized interest appears on the balance sheet as a part of inventory and is expensed when inventory is sold.
  - For the company's own use (the building is classified as a long-lived asset)
    - The capitalized interest shows on the balance sheet as a part of PPE and is expensed over time as part of depreciation.

↳ from interest

A = L + E
PPE 100
cash -100

If firm cannot capitalize int expense
A = L + E
cash -100 | int expense -100

- Under IFRS, but not under US GAAP, *income earned* temporarily investing the borrowed money decreases the amount of borrowing costs eligible for capitalization.

Int coverage ratio = EBIT / Int exp.
Int exp.
↳ Int that was already capitalized

ACQUISITION OF PP&E- BORROWING COSTS

Example 2 Capitalized Borrowing Costs

BILDA S.A., a hypothetical company, borrows €1,000,000 at an interest rate of 10 percent per year on January 1, 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.

Investing their borrowing cash in ST investment

1. What is the amount of interest that will be capitalized under IFRS, and how would that amount differ from the amount that would be capitalized under US GAAP?
2. Where will the capitalized borrowing cost appear on the company's financial statements?

1) IFRS : interest = 2 yr × 1,000,000 × 10% − 20,000 = 180,000

2) US GAAP: Interest = 200,000

	A	=	L	+	E
BIS	PPE	180,000			
	Cash	−180,000			

If firm cannot capitalize

Cash − 180,000

Int expense −200,000

Int income +20,000

ACQUISITION OF INTANGIBLE ASSETS

↳ In practice, cannot revalue intangible assets
↳ no active market

- Intangible assets:
  - Assets lacking physical substance.
  - Include items that involve exclusive rights, such as patents, copyrights, trademarks, and franchises.
- Accounting for an intangible asset depends on how it is acquired. We will consider three ways:
  - Purchased in situations other than business combinations,
  - Developed internally, and
  - Acquired in business combinations.

e.g. Microsoft develops its own software

↳ purchased the whole company

ACQUISITION OF INTANGIBLE ASSETS

How Acquired	Treatment at Acquisition
Intangible assets purchased in situations other than business combinations.	Recorded at fair value, which is assumed to be equivalent to the purchase price (same as long-lived tangible assets). If several intangible assets are acquired as part of a group, the purchase price is allocated to each asset on the basis of its fair value.
Intangible assets developed internally.	Generally expensed when incurred, although capitalized in some situations.
Intangible assets acquired in a business combination.	Identifiable assets are recorded at fair value. If acquisition price exceeds the sum of amounts allocable to individual identifiable assets and liabilities, the excess is recorded as *goodwill.*

A = L + E
intangible asset (purchase price) +$50
cash -$50

It is hard to know the value of intangible asset ↗ there's uncertainty whether this will provide future benefit

↳ US GAAP : eg. software can be capitalized

e.g. price = 1 million
PV (assets) = $800,000
Goodwill = $200,000

INTANGIBLE ASSETS DEVELOPED INTERNALLY

- Generally expensed when incurred, although capitalized in some situations.
- Internally developed vs purchased intangible assets
  - *Effect on balance sheet:* a company that has internally developed such intangible assets as copyrights, or brands through expenditures on R&D or advertising will recognize a lower amount of assets on its balance sheet than a company that has obtained intangible assets through external purchase.
  - *Effect on the statement of cash flows:* costs of internally developing intangible assets are classified as operating cash outflows, whereas costs of purchasing intangible assets are classified as investing cash outflows.

INTANGIBLE ASSETS DEVELOPED INTERNALLY- RESEARCH AND DEVELOPMENT ACTIVITIES

Identifying R&D activities:

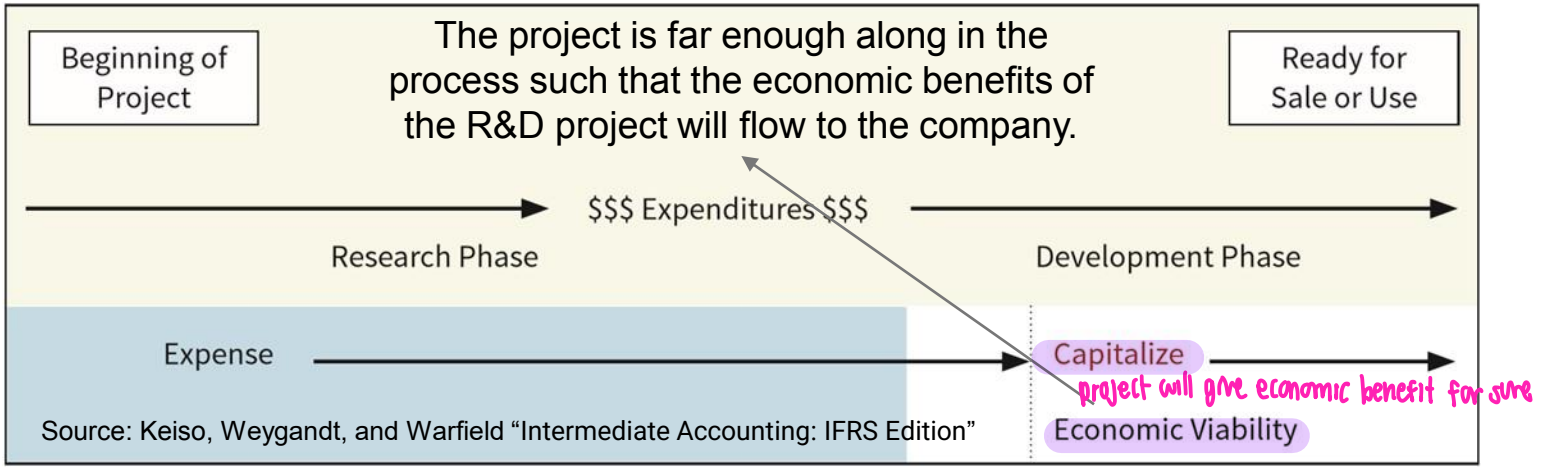
Research Activities	Development Activities
 search over and over again until found something ↓ may not give any benefit at all	
Original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding.	Application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems, or services before the start of commercial production or use.
Examples	**Examples**
Laboratory research aimed at discovery of new knowledge; searching for applications of new research findings.	Conceptual formulation and design of possible product or process alternatives; construction of prototypes and operation of pilot plants.

Source: Keiso, Weygandt, and Warfield “Intermediate Accounting: IFRS Edition”

INTANGIBLE ASSETS DEVELOPED INTERNALLY

- Companies expense all research phase costs and some development phase costs.
- Certain development costs are capitalized once economic viability criteria are met (the economic benefits of intangible assets will probably flow to the company).
- **IFRS** identifies several specific criteria that must be met before development costs are capitalized.
  - a demonstration of the technical feasibility of completing the intangible asset and the intent to use or sell the asset.

US-GAAP expense both research & development phase



Source: Keiso, Weygandt, and Warfield "Intermediate Accounting: IFRS Edition"

INTANGIBLE ASSETS DEVELOPED INTERNALLY

- U.S. GAAP:
  - Generally, both research and development costs are expensed.
  - For costs related to software development: → can be allowed to capitalize if
    - Products for sale: Both research and development expenditures are expensed until *technology feasibility* is established; they are subsequently capitalized.
    - Software for internal use: Both research and development expenditures are expensed until probable completion of the project is demonstrated; they are subsequently capitalized.
    - The treatment of software development costs under US GAAP is similar to the treatment of all costs of internally developed intangible assets under IFRS

SOFTWARE DEVELOPMENT COSTS

EXHIBIT 4 Disclosure on Software Development Costs

Excerpt from Management's Discussion and Analysis (MD&A) of Microsoft Corporation, Application of Critical Accounting Policies, Research and Development Costs:

> "Costs incurred internally in researching and developing a computer software product are charged to expense until technological feasibility has been established for the product. Once technological feasibility is established, all software costs are capitalized until the product is available for general release to customers. Judgment is required in determining when technological feasibility of a product is established. We have determined that technological feasibility for our software products is reached after all high-risk development issues have been resolved through coding and testing. Generally, this occurs shortly before the products are released to production. The amortization of these costs is included in cost of revenue over the estimated life of the products."

Source: Microsoft Corporation Annual Report on Form 10-K 2017, p. 45.

CAPITALIZED VERSUS EXPENSE: EFFECT ON FINANCIAL STATEMENTS

Item	Balance Sheet	Income Statement	Statement of Cash Flow
Costs that are capitalized			
• At acquisition	Increase assets	----	Investing cash outflow
• Subsequently	----	Expensed via depreciation	----
Costs that are expensed when incurred	----	Immediately reduce net income	Operating cash outflow

All else being equal,

- Capitalizing results in higher profitability ratios (return on equity and net profit margin) in the first year and lower profitability ratios in subsequent years.
- Expensing will give the appearance of greater subsequent growth in profits.

CAPITALIZATION OF INTEREST COSTS

- Companies must capitalize its borrowing costs associated with acquiring or constructing an asset that requires a long period of time to get ready for its intended use.

A = L + E
PPE ↑
Cash ↓

- Issues to consider
  - Capitalized interest appears part of investing cash outflows, whereas expensed interest generally reduces operating cash flows.
  - Interest coverage ratio (EBIT/Interest payment)
    - Both capitalized portion and the expensed portion should be used in calculating interest coverage ratios.

EXHIBIT 3 Melco Resorts & Entertainment Limited Selected Data, as Reported (Dollars in thousands)

	2017	2016	2015
EBIT (from income statement)	544,865	298,663	58,553
Interest expense (from income statement)	229,582	223,567	118,330
Capitalized interest (from footnote)	37,483	29,033	134,838
Amortization of deferred financing costs (from footnote)	26,182	48,345	38,511
Net cash provided by operating activities	1,162,500	1,158,128	522,026
Net cash from (used) in investing activities	(410,226)	280,604	(469,656)
Net cash from (used) in financing activities	(1,046,041)	(1,339,717)	(29,688)

Notes: EBIT represents "Income (Loss) Before Income Tax" plus "Interest expenses, net of capitalized interest" from the income statement.

Disclosure: "Interest and amortization of deferred financing costs associated with major development and construction projects is capitalized and included in the cost of the project.... Total interest expenses incurred amounted to $267,065, $252,600, and $253,168, of which $37,483, $29,033, and $134,838 were capitalized during the years ended December 31, 2017, 2016, and 2015, respectively.

↳ must be amortized in by the end of each year

Amortization of deferred financing costs of $26,182, $48,345, and $38,511, net of amortization capitalized of nil, nil, and $5,458, were recorded during the years ended December 31, 2017, 2016, and 2015, respectively." (Form 20-F filed 12 April 2018).

Cash payments for deferred financing costs were reported in cash flows from financing activities.

- Calculate and interpret Melco's 2017 interest coverage ratio with and without capitalized interest. (Note: Interest coverage ratio = EBIT/Interest payment)
  - Unadjusted basis, interest coverage = 544,865/229,582 = 2.37 (only from income statement !!!)
  - Adjusted basis, interest coverage =

EBIT = 544,865 + 26,182 = 571,047 (amortized of deferred financing costs)
(as reported)

Interest payment = 229,582 + 37,483 = 267,065 (capitalized int)
(this one is amortized by 26,182 as expense → should be added back to EBIT)

→ adjusted interest coverage = 2.14

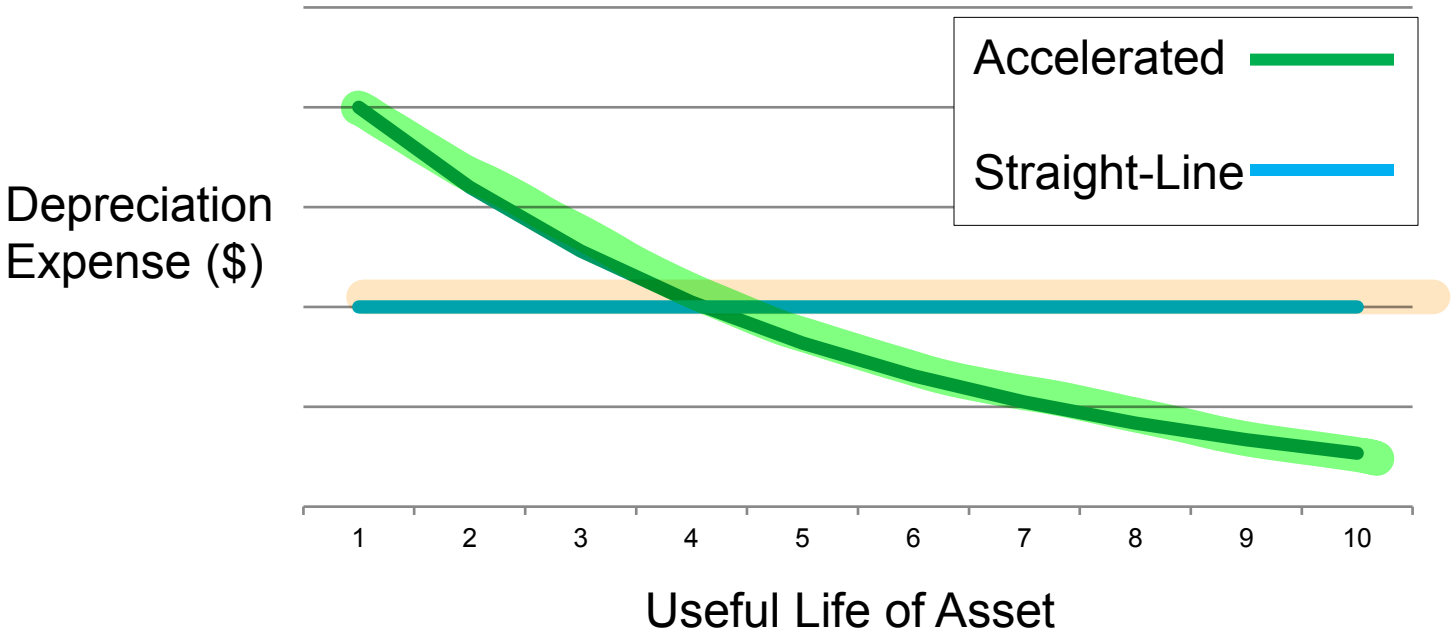
- Calculate Melco's percentage change in operating cash flow from 2016 to 2017. Assuming the financial reporting does not affect reporting for income taxes, what were the effects of capitalized interest on operating and investing cash flows?
  - If the interest had been expensed rather than capitalized (investing → it will be shown in OA instead), operating cash flows would have been (higher/lower) in all three years. (if capitalized int → expense)
  - Unadjusted basis, CFO increased by (1,162,500/1,158,125) = 0.4%
  - Adjusted basis, CFO (operating) (increased/decreased) by

CFO (2018) = 1,162,500 − 37,483 = 1,125,017
CFO (2017) = 1,158,125 − 29,033 = 1,129,092
⇒ CFO changed by $\frac{1,125,017}{1,129,092} - 1 = -0.36\%$

DEPRECIATION METHODS

value of PPE will be different

- **Straight-line method:** When the cost of the asset is allocated to expense evenly over its useful life.
- **Accelerated method:** When the allocation of cost is greater in earlier years.
- **Units-of-production method:** When the allocation of cost corresponds to the actual use of an asset in a particular period. ↳ follow the production unit



CALCULATE DEPRECIATION EXPENSE: EXAMPLE

- At the beginning of Year 1, the company buys box manufacturing equipment for $2,300.
- Estimated residual value: $100.
- Estimated useful life: 4 years.
- For each year, what are the beginning and ending net book value (carrying amount), end-of-year accumulated depreciation, and annual depreciation expenses?

by the end of yr 4, firm can sell it = $10

CALCULATE DEPRECIATION EXPENSE: STRAIGHT-LINE METHOD EXAMPLE

- At the beginning of Year 1, a company buys box manufacturing equipment for $2,300.
- Estimated residual value: $100, and estimated useful life: 4 years. $(\frac{1}{4})$ depreciation rate
- For each year, what are the beginning and ending net book values (carrying amount), end-of-year accumulated depreciation, and annual depreciation expenses?

	Year 1: Cost. Thereafter: Prior year ending book value.	*(Cost – Residual value)/Useful life* $= \frac{2{,}300 - 100}{4} = 550$	*Accumulated depreciation + Expense for year*	*Cost – Accumulated depreciation*
	Beginning Net Book Value	**Depreciation Expense**	**Accumulated Year-End Depreciation**	**Ending Net Book Value**
Year 1	$2,300	$550	$550	$1,750
Year 2	1,750	550	1,100	1,200
Year 3	1,200	550	1,650	650
Year 4	650	550	2,200	residual value = 100

CALCULATE DEPRECIATION EXPENSE: DOUBLE-DECLINING BALANCE METHOD EXAMPLE

- At the beginning of Year 1, a company buys box manufacturing equipment for $2,300.
- Estimated residual value: $100, and estimated useful life: 4 years.
- For each year, what are the beginning and ending net book values (carrying amount), end-of-year accumulated depreciation, and annual depreciation expenses?

	Year 1: Cost. Thereafter: Prior year ending book value	*Beginning net book value × Depreciation rate until…*	*Accumulated depreciation + Expense for year*	*Cost – Accumulated depreciation*
	Beginning Net Book Value	Depreciation Expense	Accumulated Year-End Depreciation	Ending Net Book Value
Year 1	$2,300	$1,150	$1,150	$1,150
Year 2	1,150	575	1,725	575
Year 3	575	288	2,013	287
Year 4	287	187	2,200	100

good for manufacturing firm

CALCULATE DEPRECIATION EXPENSE: UNITS-OF-PRODUCTION METHOD EXAMPLE

- At the beginning of Year 1, a company buys box manufacturing equipment for $2,300.
- Estimated residual value: $100, and estimated useful life: 4 years.
- Total estimated productive capacity: 800 boxes.
- Production in Years 1, 2, 3, 4: 200, 300, 200, and 100 boxes

Depreciation per box = $\frac{2{,}300 - 100}{800} = 2.75$

	Year 1: Cost. Thereafter: Prior year ending book value	*Actual units produced × Per unit cost*		*Accumulated depreciation + Expense for year*	*Cost – Accumulated depreciation*
	Beginning Net Book Value	Depreciation Expense		Accumulated Year-End Depreciation	Ending Net Book Value
Year 1	$2,300	2.75 × 200	$550	$550	$1,750
Year 2	1,750	2.75 × 300	825	1,375	925
Year 3	925	" — " × 200	550	1,925	375
Year 4	375	" — " × 100	275	2,200	100

IMPACT ON RESULTS AND RATIOS

Method: The accelerated method, compared with the straight-line method, will result in:

- Higher depreciation expense in earlier periods, so lower operating profit margin and operating return on assets (ROA) in the early periods and higher operating profit margin and operating ROA in the later periods.
- Lower average total assets in earlier periods and thus higher asset turnover ratio.

Assumptions:

- Longer useful life compared with shorter useful life: lower annual depreciation expense.
- Higher salvage value compared with lower salvage value: lower annual depreciation expense.

AMORTIZATION

- **Amortization:** Allocation of the cost of an intangible asset over its useful life.
- An intangible asset with an indefinite useful life is not amortized.
- An intangible asset with a finite useful life is amortized using the same methods as depreciation. Calculating amortization requires
  - The original amount at which the intangible asset is recognized,
  - The estimated length of its useful life, and
  - The estimated residual value at the end of its useful life.

e.g. goodwill

you should put 0
unless you know the price

REVALUATION MODEL: PERMITTED UNDER IFRS

Revaluation model:

- Alternative to historical cost model permitted under IFRS, not US GAAP.
- Long-lived assets measured at fair value.
  - cost model → cost - accumulated depreciation = carring amount
- May be used only if the fair values of the assets can be measured reliably.
  - LAND
- Unlike historical cost, may result in increases or decreases in value of long-lived assets.
- May be used for some classes of assets while historical cost is used for other classes, but the same model must be applied to assets within a particular class.
  - Different classes of assets: land, building, machinery, furniture, and etc.
    - if there're 5 location and company use revaluation model
    - firm must find fair value for all locations
- Permitted for intangible assets, but only if an active market for the asset exists.
- In practice, the use of revaluation model is relatively rare for either tangible or intangible and is especially rare for intangibles.

REVALUATION MODEL: MULTIPLE YEARS

unrealized gain → revaluation surplus

cost 100 → FV = 110 Δ$10 (OCI)

- Case1: If a revaluation initially increases the carrying amount of the asset class, the increase (unrealized gain) is not recognized in the income statement but shown directly under the shareholders' equity under the revaluation surplus account.
  - Subsequently, if the carrying value of the asset class decreases, the decrease in the asset's value first decreases the revaluation surplus account.
  - The excess of the revaluation surplus account is recognized as unrealized loss in the income statement.

+$10 in the previous period

FV = 110 ↓ -10 (revaluation surplus)

85 ↓ -15 (loss on revaluation)

25 ↓

REVALUATION MODEL: EXAMPLE 1

- Assume a company has elected to use the revaluation model for an item of machinery (the company's only long-lived asset). The machine was purchased on the first day of the fiscal period, and measurement date occurs simultaneously with the company's fiscal period-end.
- Cost to purchase machine: €10,000.
- 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 statements reflect the revaluation?

	Assets =	Liabilities	+Equity
During Year1 (Purchase)	Machine +10,000 Cash -10,000		
End of Year1	Machine +1,000		Revaluation Surplus (OCI) +1,000

- Answer: Balance Sheet shows: the asset at a value of €11,000;
- Income Statement: No impact
- Other comprehensive income: €1,000 increase in the value of the asset.

REVALUATION MODEL: EXAMPLE 1

- The cost to purchase a machine was €10,000. Fair value at the end of the first fiscal period was €11,000.
- 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 revaluation (total decrease in the carrying amount of the asset is €3,500 (€11,000 – €7,500)?

FV (Beginning Year2)	€ 11,000
FV (Ending Year2)	€ 7,500

€ 3,500

use that surplus first → if it not enough ↓ become loss on revaluation

	Assets =	Liabilities	+Equity
End of Year2	Machine -3,500		Revaluation Surplus (OCI) -1,000 Loss on revaluation (I/S) -2,500

Answer: Balance sheet shows: Asset at a value of €7,500.
Revaluation surplus (an equity component) of €0.
Other comprehensive loss of €1,000, reversing previous increase in the value of the asset.
In profit and loss (i.e., income statement), loss of €2,500.

REVALUATION MODEL: MULTIPLE YEARS

- Case2: If a revaluation initially decreases the carrying amount of the asset class, the decrease (unrealized loss) is recognized in the income statement.
  - Subsequently, if the carrying value of the asset class increases, the increases is recognized in the income statement to the extent that it reverses a revaluation decrease of the same asset class previously recognized in the income statement.
  - Any increase in excess of the reversal amount will not be recognized in the income statement but will be recorded directly to equity in a revaluation surplus account.

Year 1 cost: 500 FV_1: 480 Δ20 ↓ record as loss 20

Year 2: FV_2: 530 (FV_1: 480) ↑50 can record only to the maximum of loss from previous periods (20)

gain: 20 ↑

surplus account: 30 ↑ (OCI)

REVALUATION MODEL: EXAMPLE 2

- Assume a company has elected to use the revaluation model for an item of machinery (the company's only long-lived asset). The machine was purchased on the first day of the fiscal period, and the measurement date occurs simultaneously with the company's fiscal period-end.
- Cost to purchase machine: €10,000.
- At the end of the first 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 revaluation?

	Assets =	Liabilities	+Equity
During Year1 (Purchase)	Machine +10,000 Cash -10,000		
End of Year1	Machine -2,500		Loss on revaluation (I/S) -2,500

show in income statement

Answer:

- Balance sheet shows the asset at a value of €7,500.
- Profit and loss (i.e., income statement) shows a €2,500 loss.

REVALUATION MODEL: EXAMPLE 2

- The cost to purchase the machine was €10,000. Fair value at the end of the first fiscal period was €7,500.
- At the end of the second fiscal period after acquisition, assume the fair value of the machine is determined to be €11,000. How will the company's financial statements reflect the revaluation (total increase in the carrying amount of the asset is €3,500 (€11,000 – €7,500)?

previously recorded as loss 2500

	Assets =	Liabilities	+Equity
End of Year2	Machine +3,500		Revaluation Surplus (OCI) +1,000 Gain on revaluation (I/S) +2,500

Answer:

- Balance sheet shows:
  - The asset at a value of €11,000.
  - A revaluation surplus (an equity component) of €1,000.
- Profit and loss (i.e., income statement): Profit of €2,500 reversing previous loss.
- Other comprehensive income of €1,000.

IMPAIRMENT OF ASSETS

↳ firm know that they cannot utilize benefit as record in value of asset

- Impairment charges reflect an unanticipated decline in the value of an asset.
- In general, when an asset's carrying amount is not recoverable:
  - The carrying amount of the impaired asset is written down, and
  - An impairment loss is recognized.
- IFRS vs. U.S. GAAP
  - IFRS and U.S. GAAP define recoverability differently.
  - Impairment reversals for identifiable, long-lived assets are permitted under IFRS but not under U.S. GAAP.

IMPAIRMENT: PP&E

- At the end of each reporting period, a company assesses whether there are indications of asset impairment (e.g., evidence of obsolescence, decline in demand for products, or technological advancements).
  - *If no indication of impairment, no test for impairment.*
  - *If there is an indication of impairment, test for impairment.*
- Under IFRS, impairment loss is measured as the excess of carrying amount of the asset over its recoverable amount.
  - **Recoverable amount:** "The higher of its fair value less costs to sell and its value in use."
  - **Value in use:** Based on the present values of expected future cash flows.
- Under U.S. GAAP (Two steps)
  - **Assess recoverability:** If not recoverable (carrying amount exceeds *undiscounted* expected future cash flows), then measure impairment loss.
  - Impairment loss is measured as the excess of the carrying amount of the asset over its fair value.

IMPAIRMENT OF PP&E: EXAMPLE

- Company has a machine used to produce a single product. The demand for the product has declined substantially since the introduction of a competing product. The following information pertains 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
- Costs to sell £2,000

What would the company report for the machine under IFRS versus U.S. GAAP?

IMPAIRMENT OF PP&E: EXAMPLE

IFRS

Carrying asset ⟷ recoverable amount

- A company has a machine used to produce a single product. The demand for the product has declined substantially since the introduction of a competing product. The following information pertains to the machine:

• Carrying amount	£18,000
• Undiscounted expected future cash flows	£19,000
• Present value of expected future cash flows (future benefit)	£16,000
• Fair value if sold	£17,000
• Costs to sell	£2,000

15,000

Recoverable amount: Higher of value in use and fair value less cost to sell.

IFRS:

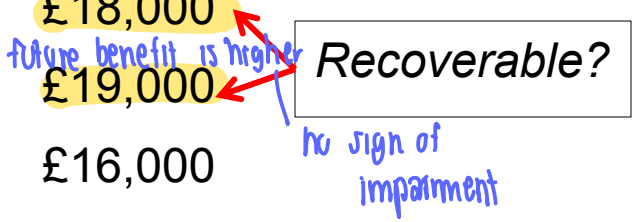
Recoverable amount:	£16,000
Carrying amount:	£18,000
Machine reported:	£16,000
Impairment loss:	£2,000

18,000 - 16,000

IMPAIRMENT OF PP&E: EXAMPLE

- A company has a machine used to produce a single product. The demand for the product has declined substantially since the introduction of a competing product. The following information pertains 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
• Costs to sell	£2,000



U.S. GAAP

Yes, it is recoverable because the amount of undiscounted expected future cash flows exceeds the carrying amount. No impairment loss is recognized.

IMPAIRMENT OF PP&E: EXAMPLE

- A company has a machine used to produce a single product. The demand for the product has declined substantially since the introduction of a competing product. The following information pertains 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
• Costs to sell	£2,000

too high

Recoverable?

① yes

find this ②

impairment loss = 18,000 - 10,000 = 8,000

U.S. GAAP

No, it is not recoverable because the undiscounted expected future cash flows is lower than the carrying amount.
An impairment loss is recognized.

Machine is reported at £10,000 (Fair value)
Impairment loss is recognized at £ 8,000 (18,000-10,000)

get rid of what you book as asset

DERECOGNITION

- Derecognition of an asset: Remove it from the financial statements.
- Derecognition occurs when the asset is disposed of or is expected to provide no future benefits from either use or disposal.
- Disposal of a long-lived asset:

① - Sale sell any fixed asset ; don't want to use anymore or end of its useful life
  - Gain or loss = Sales proceeds – Carrying amount of asset. value of asset when company sell it
  - Non-operating gain or loss.

② - Abandonment: no cash proceeds.
  - Loss = carrying amount of asset. whole amount

③ - Exchange for other asset
  - Removing the carrying amount of the asset given up
  - Adding a fair value for the asset acquired
  - The difference is reported as a gain or loss.

DISPOSAL OF ASSETS

Example 15 Calculation of Gain or Loss on the Sale of Long-Lived Assets

Moussilauke Diners Inc., 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.

gain = cash proceeds - carrying amount

1.2 = X - 1.9

X = 3.1

DISCLOSURES ABOUT LONG-LIVED ASSETS

- Disclosures about long-lived assets appear throughout the financial statements.
- Balance sheet reports the carrying value of the asset. (Cost Model)
- Income statement shows depreciation expense as a separate line item in some instances.
- Statement of cash flows:
  - Acquisitions and disposals of fixed assets in the investing section
  - Depreciation and amortization in the operating section
- Notes to financial statement:
  - Accounting methods
  - Amount of annual depreciation expense
  - Range of estimated useful lives by main category of fixed asset
  - Historical cost by main category of fixed asset
  - Accumulated depreciation by main category of fixed asset

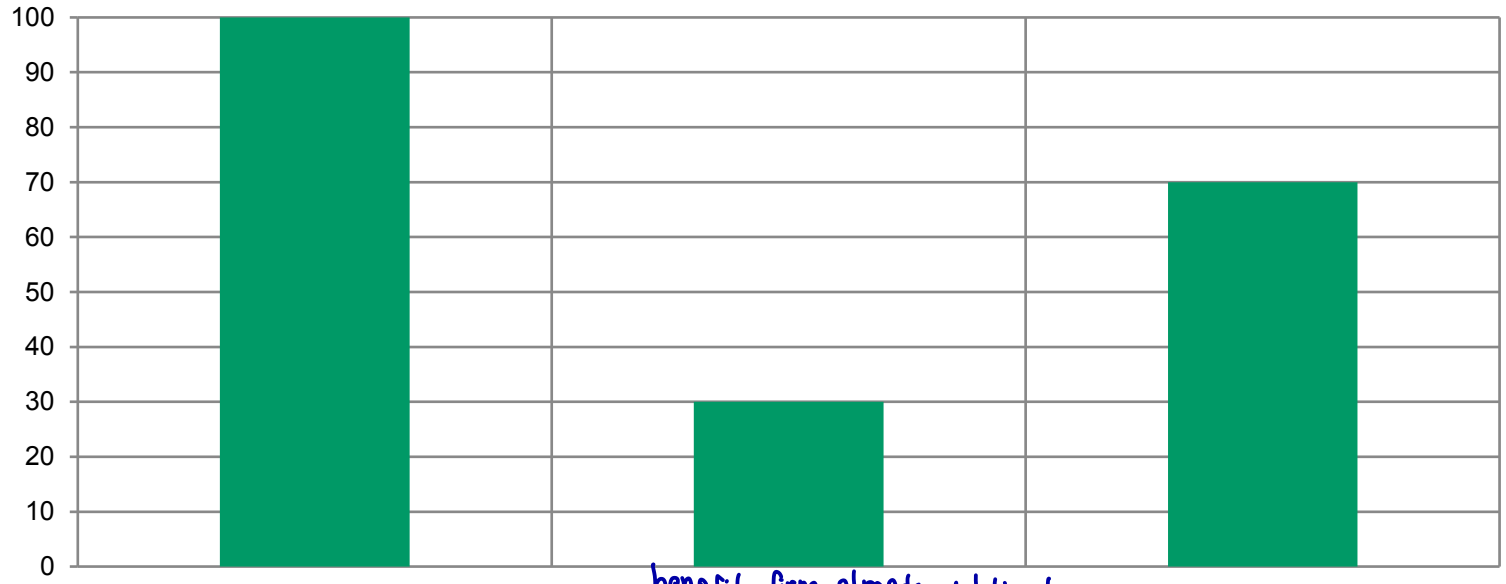
cost model | revaluation model

RATIOS USED IN ANALYZING FIXED ASSETS

- Fixed asset turnover ratio:
  - Calculated as total revenue divided by average net fixed assets.
  - Shows the relationship between total revenues and investment in PP&E.
  - The higher this ratio, the higher the amount of sales a company is able to generate with a given amount of investment in fixed assets.
  - A higher asset turnover ratio is often interpreted as an indicator of greater efficiency.
- Asset age ratios are broad indicators of a company's need to reinvest in productive capacity.
  - The average age of the asset base is estimated as the accumulated depreciation divided by the depreciation expense.
  - The average remaining life of a company's asset base is estimated as the net PP&E divided by the depreciation expense.
  - The total useful life of PP&E is estimated as the total historical cost of PP&E divided by the annual depreciation expense.

ASSET AGE RATIOS

Historical cost: $100, estimated useful life: 10 years, estimated salvage value: $0.



Historical cost($100)/ Annual depreciation expense ($10) = Total useful life (10 years)

Accumulated depreciation ($30)/ Annual depreciation expense ($10) = Estimated age (3 years)

benefit firm already utilized

Net PP&E ($70)/ Annual depreciation expense ($10) = Estimated remaining life (7 years)

remaining benefit

land, building, machine, equipment

fixed asset not to be used as operation

INVESTMENT PROPERTY

vs. PPE

mainly use for operation

↳ they use cost model rather than fair value model

smooth income

your income will be fluctuated

- Investment property is defined as property that is owned for the purpose of *earning rentals or capital appreciation or both*.
- Investment property can be valued using either a cost model or a fair value model.
  - Cost model: Identical to PP&E. → recording cost - accumulated depreciation
  - If the cost model is used, the fair value of the investment property must be disclosed.

    evaluation model
  - Fair value model: All changes in the fair value of the asset affect net income.

Do you think companies recognize investment property using the cost model or the fair value model?

SUMMARY

- Expenditures related to long-lived assets are capitalized as part of the cost of assets if they are expected to provide future benefits and expensed otherwise.
- Capitalizing versus expensing an expenditure can significantly affect financial statements and ratios.
- Financial statements and ratios can be significantly affected by choice of depreciation/amortization method and by assumptions about useful life and residual value.
- IFRS (but not U.S. GAAP) permit the use of either the cost model or the revaluation model for the valuation of long-lived assets.
- Impairment charges reflect an unexpected decline in the fair value of an asset to an amount lower than its carrying amount.
- IFRS (but not U.S. GAAP) permit impairment losses to be reversed.
- Ratios used in analyzing fixed assets include the fixed asset turnover ratio and several asset age ratios.

1. When constructing an asset for sale, directly related borrowing costs are most likely: (1 Point)

- capitalized as part of property, plant, and equipment.
- capitalized as part of inventory. ✓
- expensed as costs of goods sold
- expensed as incurred.

2. Intangible assets with finite useful lives mostly differ from intangible assets with infinite useful lives with respect to the accounting treatment of: (1 Point)

- Amortization ✓
- Revaluation and amortization
- Revaluation
- Impairment

3. Costs incurred for intangible assets are generally expensed when they are: (1 Point)

- internally developed. ✓
- individually acquired.
- acquired in a group of multiple assets.
- acquired in a business combination.

4. A company purchases a piece of equipment for €1,500. The equipment is expected to have a useful life of five years and no residual value. In the first year of use, the units of production are expected to be 15% of the equipment's lifetime production capacity and the equipment is expected to generate €1,500 of revenue and incur €500 of cash expenses. The depreciation method yielding the lowest operating profit on the equipment in the first year of use is: (1 Point)

depreciation rate = $\frac{1}{5}$

highest depreciation

- straight line. $\frac{1,500}{5} = 300$
- double-declining balance. ✓ $2\left(\frac{1}{5}\right) \times 1500 = 600$
- units of production. → $1500 \times 15\% = 225$

5. Companies X and Z have the same beginning-of-the-year book value of equity and the same tax rate. The companies have identical transactions throughout the year and report all transactions similarly except for one. Both companies acquire a £300,000 printer with a three-year useful life and a salvage value of £0 on January 1 of the new year. Company X capitalizes the printer and depreciates it on a straight-line basis, and Company Z expenses the printer. The following year-end information is gathered for Company X.
Ending shareholders' equity = £10,000,000
Tax rate =25%
Dividend =£0
Net income = £750,000.
Based on the information given, Company Z's return on equity using year-end equity will be closest to: (1 Point)

- 5.4%.
- 5.6%
- 6.1%.
- 7.5%.

Company X : straight-line : depre expense : $\frac{300,000}{3} = 100,000$

Company Z :

Net income : 750,000 − (200,000 × (1 − 25%)) = 600,000 (150,000)

Equity = 10,000,000 − 150,000 = 9,850,000

→ ROE = 6.1%

6. Which of the following characteristics is most likely to differentiate investment property from property, plant, and equipment? (1 Point)

- It is long-lived.
- It is tangible.
- It earns rent.
- None of the above

7. If a company uses the fair value model to value investment property, changes in the fair value of the asset are least likely to affect: (1 Point)

- carry value of the asset.
- net operating income.
- net income. ✗
- other comprehensive income.

8. MARU S.A. de C.V., a Mexican corporation that follows IFRS, has elected to use the revaluation model for its property, plant, and equipment. One of MARU's machines was purchased for 2,500,000 Mexican pesos (MXN) at the beginning of the fiscal year ended March 31, 2010. As of March 31, 2010, the machine has a fair value of MXN 3,000,000. Should MARU show a profit for the revaluation of the machine? (1 Point)

- No, because this revaluation is recorded directly in equity.
- Yes. Profit will show in Income statement.
- Yes. Profit will show in other comprehensive income statement.
- Yes. Profit will show in other comprehensive income statement.

increase in fair value → unrealized gain → revaluation surplus in equity

9. CROCO S.p.A sells an intangible asset with a historical acquisition cost of €12 million and an accumulated depreciation of €2 million and reports a loss on the sale of €3.2 million. Which of the following amounts is most likely the sale price of the asset? (1 Point)

- €8.8 million.
- €13.2 million.
- €6.8 million.
- €15.2 million.

12
2
Net cost 10

10
3.2 loss on sale
6.8

10. An analyst is studying the impairment of the manufacturing equipment of WLP Corp., a UK-based corporation that follows IFRS. He gathers the following information about the equipment:
Fair value = 16.8 million
Costs to sell = 0.8 million
Value in use = 14.5 million
Net carrying amount = 19.1 million
The amount of the impairment loss on WLP Corp.'s income statement related to its manufacturing equipment is closest to:
(1 Point)

fair value - costs to sell = 16 mm
recoverable amount = 16 mm
impairment loss = 19.1 - 16 = 3.1 mm

- 2.3 million
- 4.6 million
- 3.1 million
- 19.3 million