ACC 1701X
Accounting for Decision Makers

Lecturer: Dr. Hanny Kusnadi

Highlights from last week (lecture 08)

- Inventory for Merchandising Companies
  - Perpetual inventory system – up-to-date inventory, use inventory account for merchandise transactions, record COGS as transactions occurs.
  - Periodic inventory system – use "temporary" accounts for merchandise transactions and close them out to inventory account at the end of the period, calculate COGS at the end of the period.
- Inventory Costing
  - Inventory costing methods : specific identification, LIFO, FIFO, weighted average
  - Lower of cost and Net realizable value – record a write-down when cost > NRV
  - Effect of Inventory Errors on FS – CocoNutz Exercise
- FSA
  - Inventory Turnover & Number of Days' Sales in Inventory
  - Number of Days' Purchases in Accounts Payable
  - Net Operating Cycle

Chapter 10

Property, Plant & Equipment (PPE) & Intangible Assets

Goals for Lecture 09

Property, Plant & Equipment (PPE)

- Long-term Operating Assets (LO1)
- Acquisition of PPE (LO2)
- Depreciation Methods (LO3)
  - Straight-line depreciation
  - Units of production depreciation
  - Declining-balance depreciation
- Changes in Depreciation Estimates (LO4)
- Capitalize or Expense? (LO5) + *(Chapter 9 - LO4)*
- Impairment of PPE (LO6)
- Disposal of PPE (LO8)
- How to report PPE on FS (LO7): Cathay Pacific Examples

We will NOT cover Exchanging PPE (LO11), Revaluation Model (LO12) and Assets Acquired by Leasing and/or construction (LO13) in this module.

Goals for Lecture 08

Intangibles

- Intangible Assets & Amortization (LO9)

Financial Analysis

- Fixed Assets Turnover ratio (LO10)
- Total Assets Turnover ratio

Long-term Operating Assets

How to classify them?

- Assets held and used to facilitate operating activities and generate revenues.
- Types of long-term assets:

1) Tangible assets – with physical substance

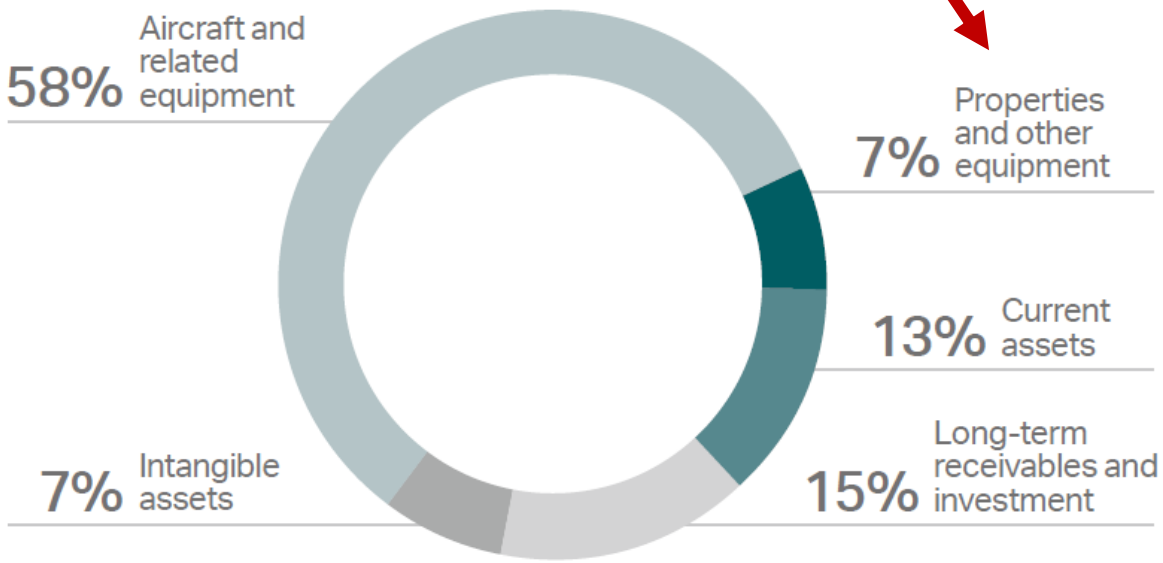
- ***Property, Plant & Equipment (PPE)*** – "Fixed Assets"
  - E.g. Land, buildings, fixtures & equipment
- ***Natural resources***
  - E.g. mineral deposits, timber tracts, oil fields etc…

2) Intangible assets – no physical substance

- Assets that give specific rights to the owners
  - E.g. patents, copyrights, franchises, licenses (Definite life)
  - E.g. trademarks, goodwill (Indefinite life)

Real FS – Cathay Pacific Airlines
PPE

PPE (65% of total assets)



CATHAY PACIFIC
國泰航空公司

(Source: Cathay 2020 Annual Report)

Real FS – Pfizer Intangibles

(MILLIONS, EXCEPT PREFERRED STOCK ISSUED AND PER COMMON SHARE DATA)	As of December 31, 2019	2018
Assets		
Cash and cash equivalents	$ 1,305	$ 1,139
Short-term investments	8,525	17,694
Trade accounts receivable, less allowance for doubtful accounts: 2019—$527; 2018—$541	8,724	8,025
Inventories	8,283	7,508
Current tax assets	3,344	3,374
Other current assets	2,600	2,461
Assets held for sale	21	9,725
Total current assets	32,803	49,926
Equity-method investments	17,133	181
Long-term investments	3,014	2,586
Property, plant and equipment, less accumulated depreciation	13,967	13,385
Identifiable intangible assets, less accumulated amortization	35,370	35,211
Goodwill	58,653	53,411
Noncurrent deferred tax assets and other noncurrent tax assets	2,099	1,924
Other noncurrent assets	4,450	2,799
Total assets	$ 167,489	$ 159,422

Intangibles (56% of total assets)

Acquiring PPE

How to measure acquisition cost?

- PPE (tangible assets actively used in operations that will give future benefits) are initially recorded at **COST**.
- Acquisition cost:
  - Including the purchase price and all expenditures needed to prepare the asset for its intended use.
  - Does NOT include financing charges

Buildings

- Purchase/ construction price
- Renovation and repair costs
- Brokerage fees
- Legal & title fees
- Taxes

Equipment

- Purchase price
- Installation costs
- Building modifications needed for installation
- Transportation costs & insurance
- Taxes

Land ***NOT Depreciable***

- Purchase price
- Real estate commissions
- Title insurance premiums
- Delinquent taxes
- Surveying fees
- Title search & transfer fees
- Legal & escrow fees

Land Improvements

- Improvement cost (include materials, labor & overhead)
- E.g. Parking lots, driveways, fences, walks, shrubs, lighting systems, landscaping

Acquiring PPE
How to record acquisition?

1) Acquisition for Cash

- E.g. Cathay Pacific purchased aircraft for $75,000,000 cash.

Aircraft Equipment	75,000,000	
Cash		75,000,000

2) Acquisition for Debt

- E.g. Cathay Pacific purchased aircraft for $1,000,000 cash and a $74,000,000 note payable.

Aircraft Equipment	75,000,000	
Notes Payable		74,000,000
Cash		1,000,000

Acquiring PPE
Lump-Sum (Basket) Purchase

- Lump-sum (basket): purchasing multiple assets for a lump-sum combined cost.
- The total cost of a combined purchase is separated on the basis of the ***relative fair market values*** of each asset component.
- E.g. Cathay Pacific paid $90,000 to acquire a land which already has a building and land improvements on it. Based on the appraisal value of each items, the $90,000 cost will be allocated on the basis of the appraised values as follow:

	Appraised Value	Percent of Total	Apportioned Cost
Land	$ 30,000	30% ($30,000/$100,000)	$27,000 ($90,000 × 30%)
Land improvements	10,000	10 ($10,000/$100,000)	9,000 ($90,000 × 10%)
Building	60,000	60 ($60,000/$100,000)	54,000 ($90,000 × 60%)
Totals	$100,000	100%	$ 90,000

DEPRECIATION

- **Depreciation is a cost allocation process that systematically and rationally matches acquisition costs of operational assets with the periods benefited by their use (the matching principle).**
- Recording depreciation:

Depreciation Expense	$XX	
Accumulated Depreciation		$XX

  - Depreciation expense is taken over the useful lifetime of the asset → Income Statement item
  - Accumulated Depreciation is contra-asset account linked to the PPE asset account. It tracks the total depreciation taken to date of an asset → Balance Sheet item
- **Net Book Value = Acquisition cost – Accumulated Depreciation**
  - Net book value is also known as the "carrying amount", which is the undepreciated cost.

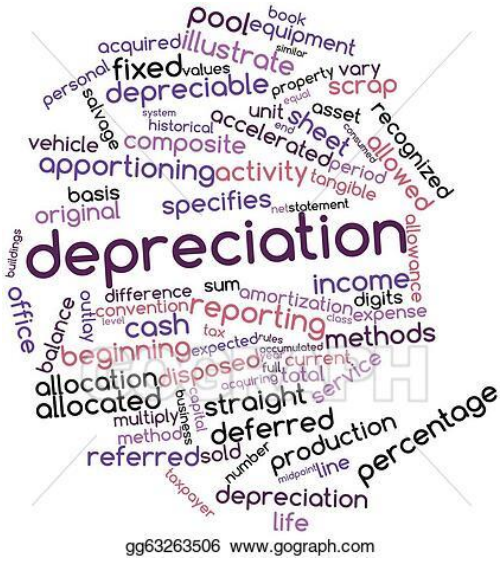
Depreciation

Types of Depreciation Methods

- To calculate depreciation expense, three values are required for each asset:
  1) Acquisition cost
  2) Estimated useful life of asset to the company
  3) Estimated residual (salvage) value at the end of asset's useful life

     (residual value = recoverable amount by the company at the end of the asset's useful life)

- **Type of depreciation methods:**
  1) **Straight-line method**
  2) **Units-of-production method**
  3) **Declining-balance method**



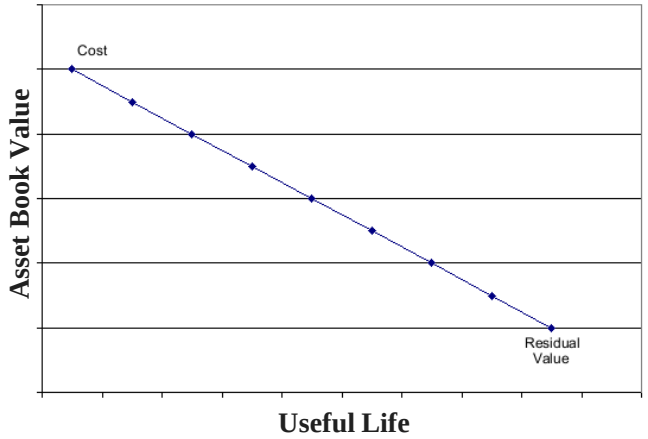
1) Straight-line Method

- The most common depreciation method.
- Equal portion recognized over asset's useful life.

$$\text{Annual Depreciation Expense} = \frac{\text{Cost - Residual Value}}{\text{Useful Life in Years}}$$

- E.g. At the beginning of the year, Cathay purchased ground equipment for $62,500 cash. The equipment has an estimated useful life of 3 years and an estimated residual value of $2,500.

$$\text{Depreciation Expense per Year} = \frac{\$62{,}500 - \$2{,}500}{3 \text{ years}} = \$20{,}000 \text{ per year}$$



Straight line method
Effect on FS

- **Income Statement**: Depreciation expense each period for length of useful life
  - E.g. At the beginning of the year, Cathay purchased ground equipment for $62,500 cash. The equipment has an estimated useful life of 3 years and an estimated residual value of $2,500.

Year 1	Depreciation expense $20,000
Year 2	Depreciation expense $20,000
Year 3	Depreciation expense $20,000

- **Statement of Financial Position**: Net Book Value (cost – accumulated depr.)
  - E.g. Cathay example above

Year 1	NBV = $42,500 (Equipment cost $62,500 – Accum. Depr $20,000)
Year 2	NBV = $22,500 (Equipment cost $62,500 – Accum. Depr $40,000)
Year 3	NBV = $ 2,500 (Equipment cost $62,500 – Accum. Depr $60,000)

Straight line method
Depreciation Schedule

- Depreciation schedule shows the amount of depreciation, accumulated depreciation and net book value of an asset:
- A typical depreciation schedule may look like this:

Year	Depreciation Expense (debit)	Accumulated Depreciation (credit)	Accumulated Depreciation Balance	Undepreciated Balance (book value)
				$ 62,500
1	$ 20,000	$ 20,000	$ 20,000	42,500
2	20,000	20,000	40,000	22,500
3	20,000	20,000	60,000	2,500
	$ 60,000	$ 60,000		

Residual Value

2) Units-of-Production Method

- Allocates depreciable costs based on total estimated productive output.
- How to calculate depreciation expense under this method:
  - ***Step 1:*** Calculate the depreciation rate

$$\textbf{Depreciation Rate per unit} = \frac{\textbf{Cost - Residual Value}}{\textbf{Total Units of Production}}$$

  - ***Step 2***: Calculate depreciation expense based on actual production

$$\textbf{Depreciation Expense} = \textbf{Depreciation Rate per unit} \times \textbf{Actual Units Produced}$$

2) Units-of-Production Method

Cathay Pacific Example

- E.g. At the beginning of the year, Cathay purchased ground equipment for $62,500 cash. The equipment has a 100,000 miles useful life and an estimated residual value of $2,500.
  If the equipment is used 30,000 miles in the first year, what is the amount of depreciation expense in the first year?

$$\text{Depreciation Rate} = \frac{\$62{,}500 - \$2{,}500}{100{,}000 \text{ miles}} = \$.60 \text{ per mile}$$

$$\text{Depreciation Expense} = \$.60 \text{ per mile} \times 30{,}000 \text{ miles} = \$18{,}000$$

- The asset's depreciation schedule may look like this:

Year	Miles	Depreciation Expense	Accumulated Depreciation Balance	Undepreciated Balance (book value)
				$ 62,500
1	30,000	$ 18,000	$ 18,000	44,500
2	50,000	30,000	48,000	14,500
3	20,000	12,000	60,000	2,500
	100,000	$ 60,000		

Residual Value

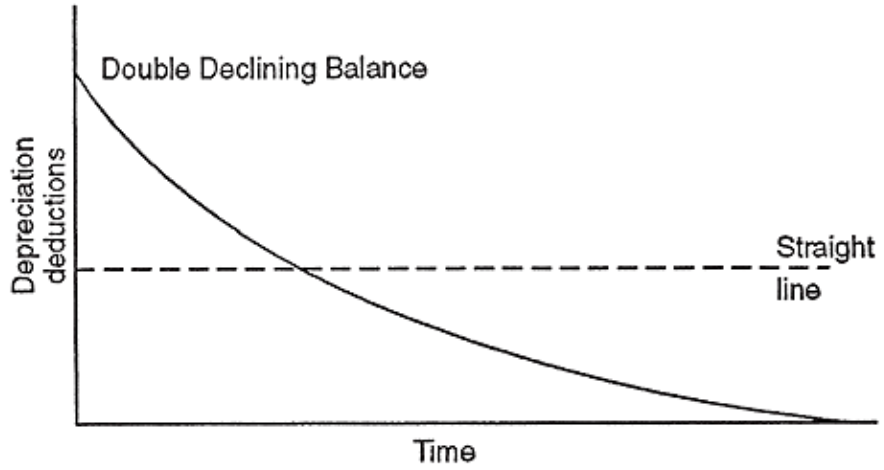
2) Units-of-Production Method
Natural Resources : Depletion

- Natural resources are assets that occur in nature (e.g. mineral deposits, timber tracts, oil, gas etc…)
- Total cost of asset is the cost of acquisition, exploration, and development.
- Total cost is allocated over periods benefited by means of **depletion** (same as depreciation conceptually).
- Depletion expense is calculated using units of production method.
- Natural resources are reported at their cost less accumulated depletion in the noncurrent assets portion of the balance sheet.




3) Declining-Balance Method

- Matches higher depreciation expense with higher revenues in the early years of an asset's useful life when the asset is more efficient.
  - Also known as "Accelerated Depreciation"
  - More depreciation taken in the beginning of an asset's useful life, less depreciation taken at the end.
- Apply a rate exceeding the straight-line rate (e.g. 2x, 1.5x)
  - **Double-declining-balance (DDB):**
    - When the rate applied is double (2x) the straight line rate.
    - Most commonly used rate for declining-balance method.



3) Declining-Balance Method
Calculating Annual Depreciation

- How to calculate depreciation expense under this method:
  - ***Step 1:*** Calculate the straight line rate

    E.g. Useful life is 4 years → straight line rate = 100%/4 = 25%
  - ***Step 2:*** Calculate the declining-balance rate at x times. (e.g. 1.5x, 2x)

    E.g. Assume double (2x) declining → DDB rate = 2 x 25% = 50%
  - ***Step 3:*** Calculate annual depreciation expense using the declining-balance rate

    E.g. Assume net book value of asset is $10,000
    → depreciation expense = $10k x 50% = $5,000 (for that period)

- Annual Depreciation can also be calculated using this quick formula:

(e.g x = 2 for double-declining-balance (DDB) rate.)

$$\textbf{Annual Depreciation expense} = \textbf{Net Book Value} \times \left(\frac{\textbf{x}}{\textbf{Useful Life in Years}} \right)$$

  - Note that the residual value is ignored in declining-balance method!

Double-declining-balance (DDB)

Cathay Pacific Example

- At the beginning of the year, Cathay purchased equipment for $62,500 cash. The equipment has an estimated useful life of 3 years and an estimated residual value of $2,500. Calculate the depreciation expense for the first two years using DDB (double-declining-balance) method.

First year: $\$62{,}500 \times \frac{2}{3 \text{ years}} = \$41{,}667$

Second year: $(\$62{,}500 - \$41{,}667) \times \frac{2}{3 \text{ years}} = \$13{,}889$

- The asset's depreciation schedule will look like this:

Year	Depreciation Expense (debit)	Accumulated Depreciation Balance	Undepreciated Balance (book value)
			$ 62,500
1	$ 41,667	$ 41,667	20,833
2	13,889	55,556	6,944
3	4,629	60,185	2,315
	$ 60,185		

Below residual value of $2,500! What to do? (refer to next slide)

Double-declining-balance (DDB)

Cathay Pacific Example (continued)

- In order to get the book value equals to the residual value at the end of the 3rd year, companies typically "force" it by limiting depreciation expense to the amount that will reduce the book value to the estimated residual value of $2,500.
- Therefore for the third year, we will record depreciation expense of $4,444. We determine this amount by subtracting the residual value of $2,500 from the book value at the end of the second year, $6,944.
- An updated depreciation schedule for the asset will look like this:

Year	Depreciation Expense (debit)	Accumulated Depreciation Balance	Undepreciated Balance (book value)
			$ 62,500
1	$ 41,667	$ 41,667	20,833
2	13,889	55,556	6,944
3	4,444	60,000	2,500
	$ 60,000		

Residual Value

3rd year depreciation expense is limited to the amount that reduces book value to the estimated residual value.

Comparing Depreciation Methods
Cathay Pacific Example

- Depreciation Expense under the 3 different methods:

Year	Straight Line	Units of Production	Double- Declining Balance
1	$ 20,000	$ 18,000	$ 41,667
2	$ 20,000	$ 30,000	$ 13,889
3	$ 20,000	$ 12,000	$ 4,444
Total	**$ 60,000**	**$ 60,000**	**$ 60,000**

- Each method starts with cost of $62,500 and ends with a residual value of $2,500.
- Different depreciation methods yield different depreciation expense taken in each period over the life of the asset → impact on profitability

Summary of Depreciation Methods

1) Straight-line method
   - Equal depreciation expense each year

$$\text{Depreciation Expense} = \frac{\text{Cost - Residual Value}}{\text{Useful Life in Years}}$$

2) Units-of-Production method
   - Varying amounts of depreciation expense each year based on production

$$\text{Depreciation Expense} = \frac{\text{Cost - Residual Value}}{\text{Life in Units of Production}} \times \text{Actual Units Produced}$$

3) Double-declining-balance (DDB) method
   - Declining amount of depreciation expense over time (accelerated depreciation)

$$\text{Depreciation Expense} = \text{Net Book Value} \times \frac{2}{\text{Useful Life in Years}}$$

Real FS – Cathay Pacific
Depreciation Method

5. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment is stated at cost less accumulated depreciation and impairment.

The cost of an item of property, plant and equipment comprises its purchase price and any directly attributable costs of bringing the asset to working condition for its intended use. The cost relating to an acquired (owned or leased) aircraft reflects all components in its full service potential excluding the maintenance condition of its landing gear, airframe and engines. The cost relating to the maintenance element is identified on acquisition as a separate component and depreciated till its next major maintenance event. Expenditure for heavy maintenance visits on aircraft, engine overhauls and landing gear overhauls, is capitalised at cost and depreciated over the average expected life between major overhauls, estimated to be 4 to 10 years. Expenditure for engine overhaul costs covered by power-by-hour (fixed rate charged per hour) maintenance agreements is expensed by hours flown. Expenditure for other maintenance and repairs is charged to profit or loss.

Depreciation of owned property, plant and equipment is calculated on a straight line basis to write down cost over their anticipated useful lives to their estimated residual values as follows:

Aircraft	over 20-23 years to residual value of the lower of 1% of cost or expected realisable value
Aircraft product	over 5-10 years to nil residual value
Other equipment	over 3-25 years to nil residual value
Buildings	over the lease term of the leasehold land to nil residual value

Real FS –Cathay Pacific
Reporting PPE on Statement of Financial Position

	Note	2020 HK$M	2019 HK$M
ASSETS AND LIABILITIES			
Non-current assets and liabilities			
Property, plant and equipment	7	**131,925**	140,114
Intangible assets	8	**15,061**	15,151
Investments in associates	9	**26,489**	27,055
Other long-term receivables and investments	10	**2,905**	3,823
Deferred tax assets	14	**627**	1,089
		177,007	187,232

PPE is presented at **net book value** in the SFP.
(For details on the acquisition cost and accumulated depreciation, you must always refer to the notes.)

CATHAY PACIFIC
國泰航空公司

Real FS –Cathay Pacific
PPE Cost & Accumulated Depreciation

7. PROPERTY, PLANT AND EQUIPMENT

	Aircraft and related equipment			Other equipment		Land and buildings			
	Owned HK$M	Finance leased HK$M	Right-of-use assets [a] HK$M	Owned HK$M	Right-of-use assets HK$M	Owned HK$M	Right-of-use assets HK$M	Under construction HK$M	Total HK$M
Cost									
At 1st January 2020	132,364	–	61,228	5,616	217	15,333	7,566	20	222,344
Additions	4,499	–	3,822	115	44	88	159	2	8,729
Disposals	(3,662)	–	(246)	(193)	(6)	(15)	(110)	–	(4,232)
Reclassification to assets held for sale	–	–	–	(64)	–	(4)	–	–	(68)
Transfers	2,182	–	(2,182)	–	–	2	–	(2)	–
Other right-of-use asset adjustments	–	–	614	–	57	–	504	–	1,175
At 31st December 2020	135,383	–	63,236	5,474	312	15,404	8,119	20	227,948
Accumulated depreciation and impairment									
At 1st January 2020	52,527	–	17,753	3,625	38	6,474	1,813	–	82,230
Charge for the year	6,747	–	4,921	294	50	738	1,098	–	13,848
Impairment	2,355	–	409	313	–	751	145	–	3,973
Disposals	(3,493)	–	(246)	(148)	(2)	(11)	(98)	–	(3,998)
Reclassification to assets held for sale	–	–	–	(26)	–	(4)	–	–	(30)
Transfers	1,521	–	(1,521)	–	–	–	–	–	–
At 31st December 2020	59,657	–	21,316	4,058	86	7,948	2,958	–	96,023
Net book value									
At 31st December 2020	75,726	–	41,920	1,416	226	7,456	5,161	20	131,925

Acquisition Cost

Total Depreciation Expense taken for the year: **$13,848**

Accum. Depr.

Net Book Value

Real FS – Cathay Pacific Income Statement

Note that these amounts includes expenses other than depreciation, so the figures do not tie exactly to Note 7's total depreciation expense of $13,848.

Companies may also disclose depreciation information in other notes (e.g. Operating Profit's note 2)

	Note	2020 HK$M	2019 HK$M
Revenue			
Passenger services		**11,950**	73,985
Cargo services		**27,890**	23,810
Other services and recoveries		**7,094**	9,178
Total revenue		**46,934**	106,973
Expenses			
Staff		**(15,786)**	(20,125)
Inflight service and passenger expenses		**(1,102)**	(5,306)
Landing, parking and route expenses		**(6,868)**	(17,758)
Fuel, including hedging losses		**(11,379)**	(29,812)
Aircraft maintenance		**(5,772)**	(9,858)
Aircraft depreciation and rentals		**(11,879)**	(12,022)
Other depreciation, amortisation and rentals		**(2,720)**	(2,991)
Commissions		**(146)**	(927)
Others		**(2,987)**	(4,847)
Operating expenses		**(58,639)**	(103,646)
Operating (loss)/profit before non-recurring items		**(11,705)**	3,327
Restructuring costs	32	**(2,383)**	–
Impairment and related charges	32	**(4,056)**	–
Gain on deemed partial disposal of an associate		**–**	114
Operating (loss)/profit	2	**(18,144)**	3,441

Real FS –Cathay Pacific
Note 2 : Operating Profit

2. OPERATING (LOSS)/PROFIT

	2020 HK$M	2019 HK$M
Operating (loss)/profit has been arrived at after charging/(crediting):		
Depreciation of property, plant and equipment		
– right-of-use assets	**6,069**	5,846
– owned	**7,779**	7,826
Amortisation of intangible assets	**573**	550
Impairment		
– property, plant and equipment	**3,973**	–
– intangible assets	**39**	–
– investment in an associate	**56**	–
Expenses relating to short-term leases and leases of low-value assets	**25**	181
COVID-19-related rent concessions received	**(316)**	–
Gain on disposal of property, plant and equipment, net	**(34)**	(175)
Loss on disposal of intangible assets	**–**	9
Cost of stock expensed	**845**	2,164
Exchange differences, net	**(295)**	(43)
Auditors' remuneration	**16**	16
Dividend income from unlisted equity investments	**(49)**	(51)

Disclosure of actual depreciation amounts, which ties to Note 7's total depreciation for the year.

Total Depreciation
= 6,069 + 7,779
= $ 13,848

Partial-Year Depreciation

- When an item of property, plant and equipment is acquired during the year, depreciation is calculated for the fraction of the year the asset is owned.
  - Eg. On August 1st 2020, Cathay purchased equipment for $62,500 cash. The equipment has an estimated useful life of 3 years and an estimated residual value of $2,500. Calculate the depreciation expense (assume straight line method) for the first year (2020).

$$\text{Depreciation Expense for 2020} = \frac{\$62{,}500 - \$2{,}500}{3 \text{ years}} \times \frac{5}{12}$$

$$= \$8{,}334$$

2020 : Depreciation expense = $8,334
2021 : Depreciation expense = $20,000
2022 : Depreciation expense = $20,000
2023 : Depreciation expense = $11,666
Total Depreciation = $60,000

Changes in Depreciation Estimates

- Depreciation is based on two estimates:

  1) estimated useful life

  2) estimated residual value

- If estimates change, we need to take into account any changes in the estimate by depreciating the asset using the new residual value, and/or over the remaining of its new useful life.
  - Change in estimates does NOT affect the depreciation expense already taken.
  - Change in estimates only affects depreciation in future years.

Changes in Depreciation Estimates
Cathay Pacific Example

- Cathay purchased an aircraft for $60,000,000. The aircraft is depreciated using the straight-line method with a useful life of 20 years and an estimated residual value of $3,000,000. → Annual depreciation = ($60m - $3m)/20 = $2.85m
- In year 5, Cathay changed the estimated useful life to 25 years and lowered the residual value to $2,400,000.
- Calculate new annual depreciation expense for the fifth year onwards:

Acquisition cost	$60,000,000
Less: Accumulated depreciation (yrs 1-4) ($2.85m x 4)	(11,400,000)
Remaining book value	48,600,000
Less: New residual value	(2,400,000)
New revised cost	46,200,000
New remaining useful life (25yrs – 4yrs)	21 years
Revised annual depreciation from year 5 onwards	2,200,000

Capitalize versus Expense
(Chapter 9 – LO4)

- Expenditures that will give future benefits can be capitalized (i.e. recorded as an asset instead of as an expense)

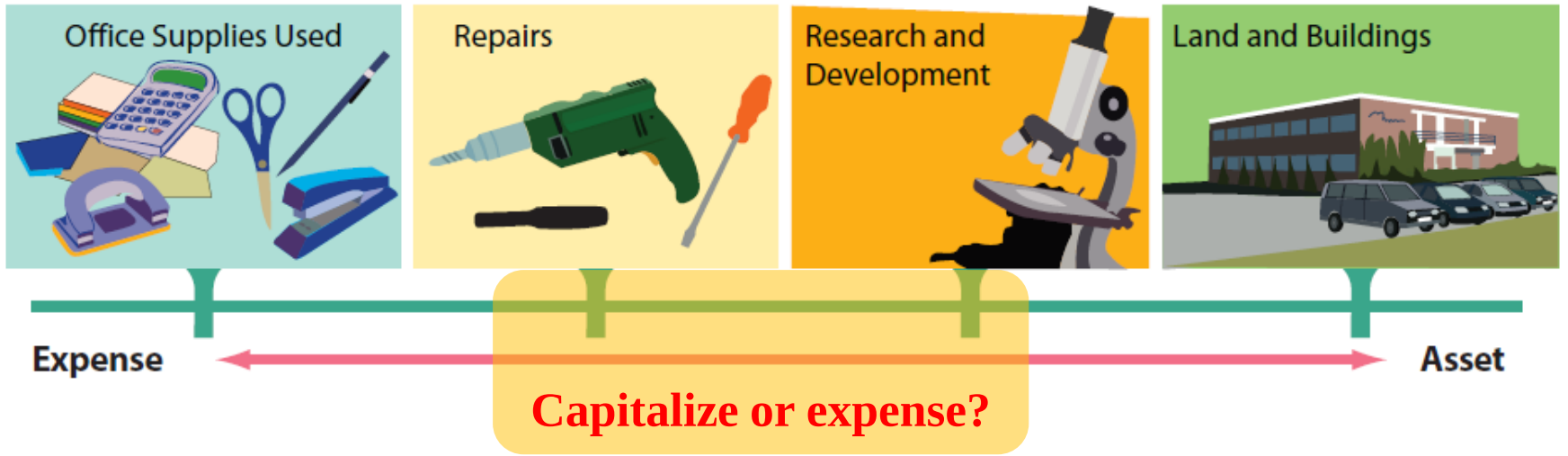


Exhibit 9.6

- R&D: (i) Research cost are expensed. Development cost <u>after</u> technological feasibility is established can be capitalized. (IFRS)

  (ii) Research & development costs are all expensed in period incurred (GAAP)

- Repairs: capitalize or expense? (see next slide)

Additional Expenditures on PPE
Capitalize or Expense?

- Fixed assets typically require maintenance or improvements during their lives to remain productive. (e.g. repairs, maintenance, upgrades, overhauls, improvements)
- Should we capitalize or expense these expenditures?

Types of Expenditures	Capitalize or Expense?	Identifying Characteristics
1) **Revenue Expenditures** – ordinary repairs & maintenance	Expense (Dr Expense)	▪ Maintains normal operating condition ▪ Does not increase productivity ▪ Does not extend life beyond original estimate ▪ Recurring in nature and involve small amounts of money at each occurrence
2) **Capital Expenditures** – additions & improvements	Capitalize (Dr LT Asset)	▪ Major overhauls or partial replacements ▪ Usually occur infrequently ▪ Increases efficiency ▪ Extends useful life beyond original estimate ▪ Involve large amounts of money

Capitalize or Expense?
A Blur Line…

- In many cases, there is no clear line distinguishing between ordinary repairs & maintenance (revenue expenditures) and improvements (capital expenditures).

Types of Expenditures	Financial Statement Effect		
	Capitalize or Expense?	**Statement Affected**	**Effect on Net Income**
1) Revenue Expenditures	Expense	**Income Statement** • Recorded as expense in current period	**Lower Net Income** • Expense is taken fully in current period
2) Capital Expenditures	Capitalize	**Balance Sheet** • Recorded as fixed asset & depreciated over time	**Higher Net Income** • Expense is taken slowly over useful lifetime

- Capitalizing expenditures can result in higher net income for the period→ creating incentives for companies to misclassify expense as capital expenditures in order to boost income!
  - E.g. WorldCom scandal (2002): Capitalized rather than expensing expenditures, resulting in inflated revenues. Assets were inflated by as much as $11 billion!
- Many companies have policies regarding the expensing of all expenditures below a certain threshold amount. If amounts involved are not material, most companies expense the item.

Impairment of PPE

- An impairment is the amount by which the carrying amount of an asset exceeds its recoverable amount.
  - Impairment is the **loss** of a portion of the utility and value of an asset (e.g. through casualty, obsolescence, lack of demand for asset's service)
- E.g. An equipment bought before has a carrying amount of $8,000 ($9,000 cost less $1,000 accumulated depreciation) and a recoverable amount of $7,500.

→ Impairment = recoverable amount – carrying amount

= $7,500 - $8,000

= $500

→ Journal entry:

Impairment loss on equipment	$500	
Accumulated Impairment Loss		$500

Real FS – Cathay Pacific
Income Statement: Impairment

	Note	2020 HK$M	2019 HK$M
Revenue			
Passenger services		**11,950**	73,985
Cargo services		**27,890**	23,810
Other services and recoveries		**7,094**	9,178
Total revenue		**46,934**	106,973
Expenses			
Staff		**(15,786)**	(20,125)
Inflight service and passenger expenses		**(1,102)**	(5,306)
Landing, parking and route expenses		**(6,868)**	(17,758)
Fuel, including hedging losses		**(11,379)**	(29,812)
Aircraft maintenance		**(5,772)**	(9,858)
Aircraft depreciation and rentals		**(11,879)**	(12,022)
Other depreciation, amortisation and rentals		**(2,720)**	(2,991)
Commissions		**(146)**	(927)
Others		**(2,987)**	(4,847)
Operating expenses		**(58,639)**	(103,646)
Operating (loss)/profit before non-recurring items		**(11,705)**	3,327
Restructuring costs	32	**(2,383)**	–
Impairment and related charges	32	**(4,056)**	–
Gain on deemed partial disposal of an associate		**–**	114
Operating (loss)/profit	2	**(18,144)**	3,441

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Real FS – Cathay Pacific
Note 32 : Impairment Loss related to PPE

- From Notes 32:

(b) Asset carrying values

Following significant changes in the operating environment for the Group, management has reviewed the recoverable amounts of its cash generating units, non-financial assets and investments.

Impairment and related charges of HK$4,056 million (pre-tax) was recognised for:

(i) The reduction in asset values (HK$2,764 million, note 7 to the financial statements) on 34 aircraft that are unlikely to re-enter meaningful economic service again before their retirement or return to lessors, and adjustment to the provision for fulfilling lease return conditions of leased aircraft included therein (HK$12 million net credit).

(ii) Impairments on goodwill (totalling HK$39 million, note 8 to the financial statements) and assets of CPCS and VLS (totalling HK$1,184 million, note 7 to the financial statements) to reduce the carrying values of assets to their estimated recoverable amounts; being the higher of fair value less costs of disposal and value in use.

(iii) Impairments on properties under leases totalling HK$25 million (see note 7 to the financial statements).

(iv) Impairment on investment in an associate of HK$56 million (see note 9 to the financial statements).

Real FS –Cathay Pacific Impairment

7. PROPERTY, PLANT AND EQUIPMENT

	Aircraft and related equipment			Other equipment		Land and buildings			
	Owned HK$M	Finance leased HK$M	Right-of-use assets [a] HK$M	Owned HK$M	Right-of-use assets HK$M	Owned HK$M	Right-of-use assets HK$M	Under construction HK$M	Total HK$M
Cost									
At 1st January 2020	132,364	–	61,228	5,616	217	15,333	7,566	20	222,344
Additions	4,499	–	3,822	115	44	88	159	2	8,729
Disposals	(3,662)	–	(246)	(193)	(6)	(15)	(110)	–	(4,232)
Reclassification to assets held for sale	–	–	–	(64)	–	(4)	–	–	(68)
Transfers	2,182	–	(2,182)	–	–	2	–	(2)	–
Other right-of-use asset adjustments	–	–	614	–	57	–	504	–	1,175
At 31st December 2020	135,383	–	63,236	5,474	312	15,404	8,119	20	227,948
Accumulated depreciation and impairment									
At 1st January 2020	52,527	–	17,753	3,625	38	6,474	1,813	–	82,230
Charge for the year	6,747	–	4,921	294	50	738	1,098	–	13,848
Impairment	2,355	–	409	318	–	751	145	–	3,973
Disposals	(3,493)	–	(246)	(148)	(2)	(11)	(98)	–	(3,998)
Reclassification to assets held for sale	–	–	–	(26)	–	(4)	–	–	(30)
Transfers	1,521	–	(1,521)	–	–	–	–	–	–
At 31st December 2020	59,657	–	21,316	4,058	86	7,948	2,958	–	96,023
Net book value									
At 31st December 2020	75,726	–	41,920	1,416	226	7,456	5,161	20	131,925

Impairment on aircrafts (as disclosed in Note 32)
2,355 + 409 = 2,764

Disposal of PPE

- Companies often dispose of their PPE before the end of its useful life, either through:
  (a) Voluntary disposals (e.g. discard it, sell it, trade it)
  (b) Involuntary disposals (e.g. fire, accident)
- Disposal of PPE typically requires **two journal entries**:
  1) An AJE to update depreciation expense and accumulated depreciation accounts to the date of disposal.
  2) An entry to record the disposal.
     - The cost of asset and any accumulated depreciation related to the disposed asset are removed.
     - Any difference between cash received during disposal (e.g. for sale) and book value of asset is recorded as either Gain/Loss.
- *Note that any gain/loss from disposal of asset is NOT an operating revenue/expense. They are typically shown under Gain/Loss after Operating Income in the Income Statement.*

Disposal of PPE – Sale

Cathay Pacific Example

- Cathay Pacific sold flight equipment for $11M cash at the end of its 17th year of use.
- The flight equipment originally cost $30M and was depreciated using the straight-line method with zero residual value and a useful life of 25 years.

Q: How do we record this disposal of asset?

1) Bring depreciation expense and accumulated depreciation up to date.

- Annual Depreciation = ($30M – $0) ÷ 25 Years
  = $1,200,000
- Journal entry to record 17th year depreciation expense:

Depreciation Expense	$1,200,000	
Accumulated Depreciation		$1,200,000

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Disposal of PPE - Sale

Cathay Pacific Example

2) Record the disposal

- Total Accumulated Depreciation = 17yrs. × $1,200,000 = $20.4 M
- Asset Book Value = Cost $30M – Accum. Depr. $20.4M = $9.6 M
- Disposal resulted in a Gain = Cash received from sale – Asset book value
  = $11M – 9.6M
  = $1.4 M
- Journal entry to record Cathay's sale of the equipment at the end of the 17th year:

Cash	$11,000,000	
Accumulated Depreciation	20,400,000	
Aircraft Equipment		30,000,000
Gain on Sale of Asset		1,400,000

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Disposal of PPE – Discarding

Cathay Pacific Example

- Cathay Pacific has flight equipment originally costing $30M and was depreciated using the straight-line method with zero residual value and a useful life of 25 years. After 25 years, the flight equipment was discarded.

Q: How do we record this disposal of asset?

Remove the fully-depreciated asset and accumulated depreciation from the book.

Accumulated Depreciation	$30,000,000	
Aircraft Equipment		$30,000,000

- *If discarded asset has not been fully depreciated, then a loss will be recognized, assuming aircraft equipment's accumulated depreciation is $20m and there's a disposal cost of $50k involved which was paid in cash:*

Accumulated Depreciation	*$20,000,000*	
Loss on Disposal of PPE	*$10,050,000*	
Aircraft Equipment		*$30,000,000*
Cash		*$ 50,000*

Real FS –Cathay Pacific
Disposal of PPE

7. PROPERTY, PLANT AND EQUIPMENT

	Aircraft and related equipment			Other equipment		Land and buildings			
	Owned HK$M	Finance leased HK$M	Right-of-use assets [a] HK$M	Owned HK$M	Right-of-use assets HK$M	Owned HK$M	Right-of-use assets HK$M	Under construction HK$M	Total HK$M
Cost									
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Disposals	(3,662)	–	(246)	(193)	(6)	(15)	(110)	–	(4,232)
Reclassification to assets held for sale	–	–	–	(64)	–	(4)	–	–	(68)
Transfers	2,182	–	(2,182)	–	–	2	–	(2)	–
Other right-of-use asset adjustments	–	–	614	–	57	–	504	–	1,175
At 31st December 2020	135,383	–	63,236	5,474	312	15,404	8,119	20	227,948
Accumulated depreciation and impairment									
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Impairment	2,355	–	409	313	–	751	145	–	3,973
Disposals	(3,493)	–	(246)	(148)	(2)	(11)	(98)	–	(3,998)
Reclassification to assets held for sale	–	–	–	(26)	–	(4)	–	–	(30)
Transfers	1,521	–	(1,521)	–	–	–	–	–	–
At 31st December 2020	59,657	–	21,316	4,058	86	7,948	2,958	–	96,023
Net book value									
At 31st December 2020	75,726	–	41,920	1,416	226	7,456	5,161	20	131,925

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Note 2 : Operating Profit

2. OPERATING (LOSS)/PROFIT

	2020 HK$M	2019 HK$M
Operating (loss)/profit has been arrived at after charging/(crediting):		
Depreciation of property, plant and equipment		
– right-of-use assets	**6,069**	5,846
– owned	**7,779**	7,826
Amortisation of intangible assets	**573**	550
Impairment		
– property, plant and equipment	**3,973**	–
– intangible assets	**39**	–
– investment in an associate	**56**	–
Expenses relating to short-term leases and leases of low-value assets	**25**	181
COVID-19-related rent concessions received	**(316)**	–
Gain on disposal of property, plant and equipment, net	**(34)**	(175)
Loss on disposal of intangible assets	**–**	9
Cost of stock expensed	**845**	2,164
Exchange differences, net	**(295)**	(43)
Auditors' remuneration	**16**	16
Dividend income from unlisted equity investments	**(49)**	(51)

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Intangible Assets

- Non-current assets without physical substance, often providing exclusive rights or privileges.
- Acquisition cost (at purchase): Record cost at current cash equivalent, including purchase price, legal fees, and filing fees etc…

Definite Life

- Amortise over its estimated useful life. Usually assumed to have no salvage value
- Use straight-line method.
- e.g. Patents, Copyrights, Franchises

Indefinite Life

- Not amortised, but tested at least annually for possible impairment, and book value is reduced to fair value if impaired.
- e.g. Trademarks, Goodwill

- **Amortisation Expense is recognized over the estimated useful life.**

Amortisation Expense	**XX**	
Accumulated Amortisation		**XX**

Intangible Assets
Examples of Intangibles

- **Goodwill** - when one company buys another company, the excess of the purchase price over the fair market value of acquired net assets is goodwill. (Note that only purchased goodwill is an intangible asset!)
- **Trademark**: exclusive legal right to use a distinctive name, image or slogan.
- **Copyrights**: exclusive rights to publish, use and sell literary, musical or artistic work.
- **Technology**: computer software (programs written by the company's employees) and web development.
- **Patents**: granted by the government for an invention, exclusive right for owner to use, manufacture and sell the product of the patent.
- **Franchise**: contractual right to sell certain products or services, use certain trademarks, or perform activities in a certain region.
- **Licenses & operating rights**: permit owners to use public property in performing services, obtained from government units or agencies.

“Intangibles” NOT recorded in the Books

- **“Intangibles” that are <u>not acquired</u> through an exchange is NOT recorded in the company’s books**
- E.g. Internally generated/developed brand, employee’s knowledge, CEO’s vision
- *Companies with valuable internally generated brands that are not recorded as an asset in their books:*

Forbes 2020 The World's Most Valuable Brands			
Rank	**Brand**	**Brand Value (by Forbes)**	**2019 Book Value**
1	Apple	$241.2 B	$90 B
2	Google	$207.5 B	$200 B
3	Microsoft	$162.9 B	$100 B
4	Amazon	$135.4 B	$62 B
5	Facebook	$70.3 B	$100 B

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Intangibles on Statement of Financial Position

	Note	2020 HK$M	2019 HK$M
ASSETS AND LIABILITIES			
Non-current assets and liabilities			
Property, plant and equipment	7	**131,925**	140,114
Intangible assets	8	**15,061**	15,151
Investments in associates	9	**26,489**	27,055
Other long-term receivables and investments	10	**2,905**	3,823
Deferred tax assets	14	**627**	1,089
		177,007	187,232

Intangibles is presented at **net book value** in the SFP.
(Refer to Note 8 for details)

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Real FS –Cathay Pacific
Intangibles: Cost & Amortisation

8. INTANGIBLE ASSETS

	Goodwill HK$M	Computer software HK$M	Others HK$M	Total HK$M
Cost				
At 1st January 2020	11,654	7,376	39	19,069
Additions	–	522	–	522
At 31st December 2020	11,654	7,898	39	19,591
Accumulated amortisation and impairment				
At 1st January 2020	–	3,898	20	3,918
Charge for the year	–	569	4	573
Impairment	39	–	–	39
At 31st December 2020	39	4,467	24	4,530
Net book value				
At 31st December 2020	11,615	3,431	15	15,061

Acquisition Cost

Accum. Amortisation

Net Book Value

Amortisation Expense for the period

Real FS –Cathay Pacific
Note 2 : Operating Profit

2. OPERATING (LOSS)/PROFIT

	2020 HK$M	2019 HK$M
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FSA

Financial Analysis

- Fixed Assets Turnover ratio (LO10)
- Total Assets Turnover ratio

Assessing Efficiency of PPE
Fixed Assets Turnover

Fixed Assets Turnover:

$$\text{Fixed Assets Turnover} = \frac{\text{Net Sales}}{\text{Average Fixed Assets}}$$

- Measures how efficient a company is in using its fixed assets to generate sales
- Average Fixed Assets = (Beg Net PPE + End Net PPE) /2
- Rough indication of how much sales is generated per each dollar (unit) of PPE
- Also known as "PPE Turnover ratio"

Assessing Profitability & Efficiency of Assets
Total Assets Turnover

Total Assets (TA) Turnover:

$$\text{TA Turnover} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

- Measures a company's ability in using its total assets as a whole to generate sales
- Average Total Assets = (Beg Total Assets + End Total Assets) /2

Fixed Assets & Total Assets Turnover
Major Airlines Example

- Comparing Fixed Assets & Total Assets turnover ratios of major international airlines in FY2019 & FY2020:

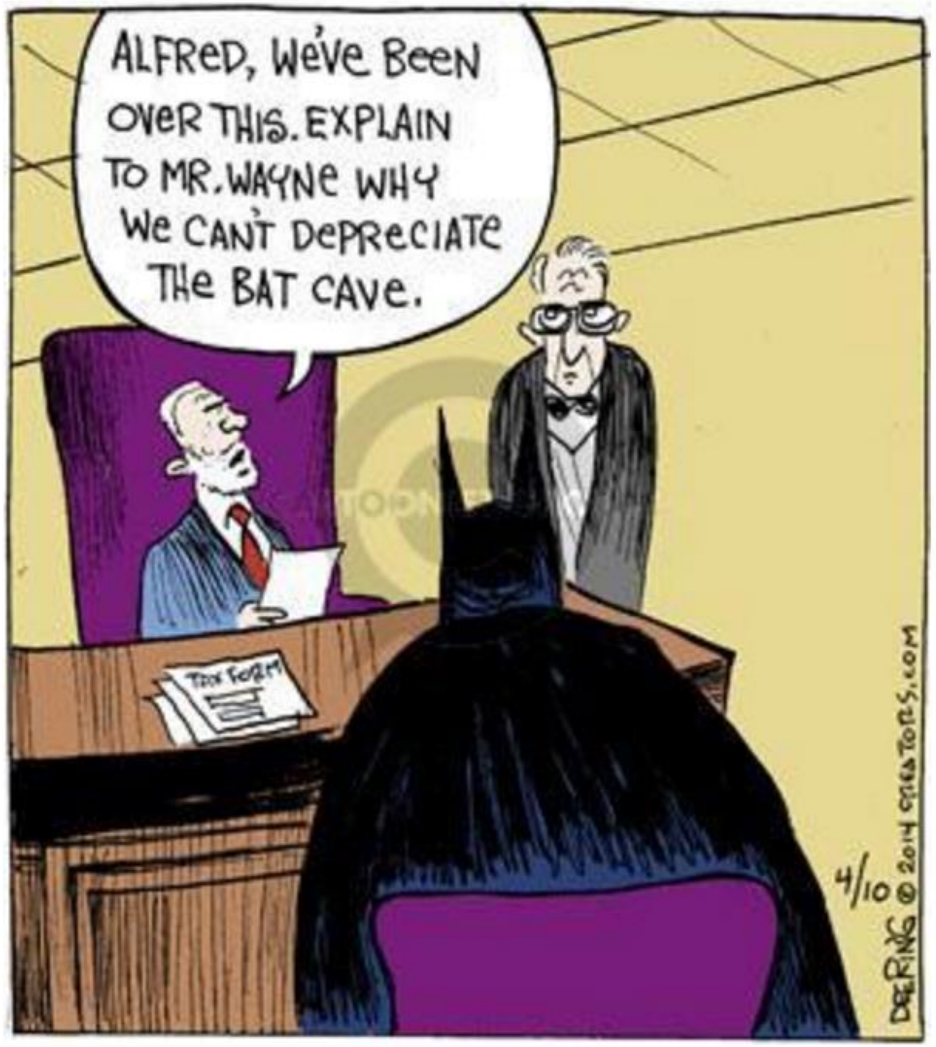
	Singapore Airlines (SGD'm)	Cathay Pacific (HKD'm)	Eva Airlines (NT$'000)	Emirates (AED'm)	Japan Airlines (YEN'm)	Virgin Atlantic (EURO'm)	United Airlines (USD'm)
FY2019							
Net Sales	16,323	106,973	181,275,258	96,040	1,385,914	2,927	43,259
Average PPE	20,173	128,619	141,303,701	89,691	1,047,661	2,075	28,785
Average Assets	30,099	202,405	298,722,749	127,493	2,067,951	3,114	50,818
Fixed Assets Turnover	**0.809**	**0.832**	**1.283**	**1.071**	**1.323**	**1.411**	**1.503**
Total Assets Turnover	**0.542**	**0.529**	**0.607**	**0.753**	**0.670**	**0.940**	**0.851**
FY2020							
Net Sales	15,976	46,934	89,048,776	90,995	481,225	868	15,355
Average PPE	23,831	136,020	135,934,155	87,758	1,064,615	2,090	30,818
Average Assets	32,109	209,545	342,909,475	149,730	2,044,767	3,027	56,080
Fixed Assets Turnover	**0.670**	**0.345**	**0.655**	**1.037**	**0.452**	**0.415**	**0.498**
Total Assets Turnover	**0.498**	**0.224**	**0.260**	**0.608**	**0.235**	**0.287**	**0.274**

Take Away for Lecture 09

- PPE (Property, Plant & Equipment)
  - Depreciation methods: Straight-line, Units-of-production, Declining-balance
  - Recording PPE transactions:
    - Acquisition
    - Changes in estimates
    - Capital expenditures
    - Impairments
    - Disposals/ Sales of PPE
- Natural Assets – Depletion (similar to units-of-production depr.)
- Intangible Assets - Amortization
- FSA:
  - Fixed Assets Turnover
  - Total Assets Turnover

"Tom, you're an asset to the company.
It's just that you're depreciating."

See you next week!



NEXT WEEK: Chapter 12: Equity

Post your questions on Canvas discussion forum.

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