Agenda

- Understand how the matching principle influences
  - the capitalization of long-lived assets
  - the expensing of capitalized costs to match revenues generated in the use of long-lived assets

- Understand how differences in “book” vs. tax accounting for depreciation lead to deferred taxes
Review of Matching Principle

- **Capitalize versus Expense**
  - Capitalized Costs means show it as an Asset on the Balance Sheet
    - Assets have future benefits
  - Expense (i.e., not capitalize) when
    - benefits are immediate
    - OR future benefits are too uncertain or immaterial (e.g., R&D)

- **Assets are consumed (in future) to generate future revenues**
  - Current Assets like Inventory, Prepaid Rent, and Insurance
  - Non-current assets like Plant, buildings, machinery
  - NC Intangible assets like Patents, acquired goodwill
The case of non-current assets: PP&E

Accounting for Non-Current assets:

- What is the acquisition cost?
- What is the expected useful service life?
- What is the salvage value?
- What pattern of depreciation should be used to allocate expense over the useful life?

Note: Land is the only non-current asset that is never depreciated / amortized
Determining Acquisition Cost

- What is given up to obtain the asset?
  - Include all costs required to bring the asset into serviceable or usable condition and location.

- **Purchased Assets**: Purchase price plus cost to prepare the asset for use (installation, transport)
  - Case 1: Cash
  - Case 2: Financing (down payment plus loan/note)

- **Self-Constructed Assets**
  - Direct costs of construction
  - Financing costs (interest on funds borrowed to finance construction)
Determining the Acquisition Cost

- Purchased Assets: Example 1
  - ABC, Inc. purchases new equipment on 1/1/03. The firm:
    - pays $890,000 to the vendor of the machine
    - pays $51,000 to transport the equipment
    - pays $8,000 for insurance during transportation
    - estimates that maintenance will cost $4,000 in the first year, and will rise by about 20% annually for 10 years
  - What is the balance sheet effect on 1/1/03?
    - Asset, Equipment = $949,000 (= 890 + 51 + 8)
Determining the Acquisition Cost

Purchased Assets: Example 2

Seattle Manufacturing acquires a workstation on 1/1/01. The firm
- pays a $30,000 down payment to the vendor
- signs a 3-year note payable for $170,000 at an annual interest rate of 10%
- pays employees $4,000 to configure the workstation for daily operations and run appropriate tests
- spends $11,500 to train the employees who will operate the workstation

What is the balance sheet effect on 1/1/01?
- Asset, Work station = $204,000 (= 30 + 170 + 4)
Determining the Acquisition Cost

Self-constructed Assets: Example

- Conglomerated Products is constructing a new production facility. Expected completion date is 6/1/2001.

- During 2000, the company
  - spends $1.7 million for materials
  - pays $2.1 million to architects and laborers
  - accrues interest payable equal to 10% of a $1.6 million construction loan
  - incurs fees related to zoning, inspection, etc. of $52,000

- What is the balance sheet effect as of 12/31/00?
  - Asset, Factory building construction in progress = $4,012,000 (= 1,700 + 2,100 + 160 + 52)
Salvage Value and Useful Life

- Determining Salvage Value
  - Requires managerial judgment
  - SV = estimated proceeds at disposal, net of selling costs
  - What factors can affect this estimate?
  - **Depreciable basis** = Acquisition cost - SV

- Determining Useful life
  - Requires managerial judgment
  - The time period over which the asset will be used
  - What factors can affect the estimate?

- Choose depreciation method
  - What does GAAP allow?
GAAP Depreciation Methods

- Production (Use) Method
  - Depreciation cost per machine-hour = depreciable basis/service life (in machine-hours)
  - Depr. Expense = Actual hours used * hourly rate

- Example:
  - A machine with depreciable basis of $50,000 is expected to provide 20,000 hours of service. During Year 1, the machine is used for 2,500 hours.
  - What is the depreciation expense for Year 1?
    - $2,500*[50,000/20,000] = $6,250
  - What is the machine’s book value at the end of Year 1?
    - $50,000 - $6,250 = $43,750
GAAP Depreciation Methods

- **Straight-line Depreciation**
  - Annual Depreciation Expense = depreciable basis/service life (in years) = \( \frac{(AC - SV)}{Years} \)
  - Used by an overwhelming majority of US firms

- **Example:**
  - Avis acquires cars for its rental fleet for $30,000 each. It expects to rent each car for 2 years, then sell them for $15,000 each.
  - What is the depreciation expense per car for Year 1?
    - \( \frac{($30,000 - $15,000)}{2} = $7,500 \)
  - What is each car’s book value at the end of Year 1?
    - $22,500
Depreciation Bookkeeping

- At the time of acquisition of the asset:
  Dr PP&E 30,000
  Cr Cash 30,000
- Say SV = 15,000
- Depreciable basis = (30,000 – 15,000)
- Depreciation = (Depreciable basis)/(useful life)
  = 15,000/2 = 7,500
- Dr Depreciation Expense 7,500
- Cr Accumulated Depreciation 7,500
Depreciation Bookkeeping

At the beginning of first year
PP&E

30,000

At the end of first year
PP&E

30,000

Acc. Deprecn.

7,500

Deprecn. Expense (RE)

7,500

At the end of first year
Gross PP&E

30,000

Less: Acc Deprecn.

07,500

Net PP&E

22,500

Income effect

-07,500
GAAP Depreciation Methods

- Accelerated Depreciation
  - Mostly confined to tax reporting
  - Higher depreciation expense is recognized in the earlier years of an asset’s useful life

- Differences between Tax *depreciation deductions* and Financial Reporting *depreciation expense* give rise to *Deferred Tax accounts*
  - More on this at end of lecture
Depreciation Bookkeeping

- What accounts does depreciation affect?
  - Accumulated depreciation account, contra-asset account
  - Retained earnings account, depreciation expense

Which financial statements are affected?
- Balance sheet and income statement

Does depreciation affect cash?
- No