Long-lived Assets

15.501/516 Accounting
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Professor S. Roychowdhury
Sloan School of Management
Massachusetts Institute of Technology

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Some Important Matters

- Problem sets 5&6
  - Due April 5
- Final exam
  - May 17, 1:30-4:30
- Date and time inflexible – set by Sloan School
- Please let me know by the end of this week if there is any conflict
- NO GUARANTEES ON FINDING YOU A ROOM AND TIME THAT WILL SUIT YOU – SO PLAN TO ATTEND EXAM AT SCHEDULED TIME

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
Lowery, Inc. purchases new equipment on 1/1/02. The firm
- pays $920,000 to the vendor of the machine
- pays $62,000 to transport the equipment
- pays $10,000 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 1/1/02?
  - Asset, Equipment = $992,000 (= 920 + 62 + 10)

Determining the Acquisition Cost

Purchased Assets: Example 2
Portland Products acquires a work-station on 1/1/02. The firm
- pays a $20,000 down payment to the vendor
- signs a 3-year note payable for $180,000 at an annual interest rate of 10%
- pays employees $5,500 to configure the work-station for daily operations and run appropriate tests
- spends $12,000 to train the employees who will operate the work-station
- What is the balance sheet effect on 1/1/02?
  - Asset, Work station = $205,500 (= 20 + 180 + 5.5)

Determining the Acquisition Cost

Self-constructed Assets: Example
Myers Manufacturing is constructing a new production facility. Expected completion date is 6/1/2002.
- During 2001, the company
  - spends $1.2 million for materials
  - pays $1.6 million to architects and laborers
  - accrues interest payable equal to 10% of a $1.5 million construction loan
  - incurs fees related to zoning, inspection, etc. of $65,000
- What is the balance sheet effect as of 12/31/01?
  - Asset, Factory building construction in progress = $3,015,000 (= 1,200 + 1,600 + 150 + 65)
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

- Straight-line Depreciation
  - Annual Depreciation Expense = depreciable basis/service life (in years) = (AC - SV) / Years
  - Used by an overwhelming majority of US firms
  - Example:
    - Hertz 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?
      - ($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 end of first year
  PP&E 30,000
  Acc. Deprecn. 7,500
  Deprecn. Expense (RE) 7,500

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