

Long-lived Assets

15.511 Corporate Accounting

Summer 2004

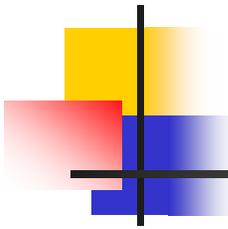
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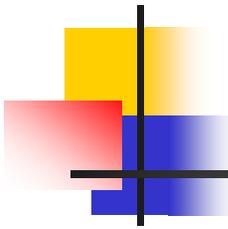
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Agenda

- 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

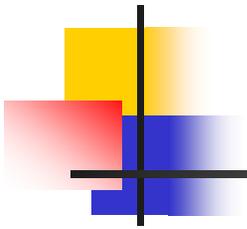


Review of Matching Principle

- 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 work-station 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 work-station for daily operations and run appropriate tests
 - spends \$11,500 to train the employees who will operate the work-station
- 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
 - $SV = \text{estimated proceeds at disposal, net of selling costs}$
 - 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) = $(AC - SV) / \text{Years}$
- 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?
 - $(\$30,000 - \$15,000) / 2 = \$7,500$
- 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

Gross PP&E	30,000
Less: Acc Deprecn.	07,500
<i>Net PP&E</i>	<i>22,500</i>
 <i>Income effect</i>	 <i>-07,500</i>

At the end of first year

PP&E

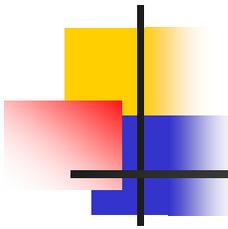
30,000

Acc. Deprecn.

7,500

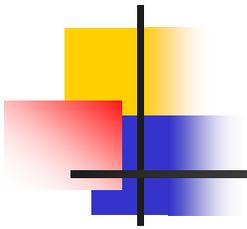
Deprecn. Expense (RE)

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