Chapter 8

Operating Assets: Property, Plant, and Equipment, Natural Resources, and Intangibles

Key Concepts:

- What are the characteristics of an operating asset and how it is presented on a balance sheet?
- What is included in the acquisition cost of operating assets?
- How to determine the acquisition costs of assets which are purchased in a lump sum
- Are all costs of operating assets recorded on the balance sheet?
- The impact of capitalizing interest as part of the acquisition cost of an asset.
- How to calculate the different depreciation methods.
- How does the choice of a depreciation method affect income, assets, and cash?
- How do intangible assets differ from tangible assets?
- When to treat expenditures as capital expenditures versus revenue expenditures.
**Balance Sheet Presentation**

Operating assets are also called fixed assets, plant assets or long-lived assets.

- Long-lived assets are those which have a useful life of more than one year.
- Are intended for the use of the business, and not acquired for resale purposes
- Operating assets consist of two types:
  - *Tangible* assets include property, plant, and equipment
  - *Intangible* assets have no physical substance
    - sometimes classified with “other assets”

**Acquisition Cost of Property, Plant, and Equipment**

Acquisition cost include all costs normal and necessary to acquire an asset and prepare it for its intended use, such as:

- Purchase price
- Taxes (paid at the time of purchase)
- Transportation charges
- Installation cost
- Repairs needed to prepare the asset for its intended use

**Group Purchase**

More than one asset may be purchased for one price:

- Land and building are a common example
- Must allocate purchase cost to assets individually using proportionate fair market value of each, based on independent appraisal
- Market value is best established by an independent appraisal of the property

**Land and improvements are recorded separately.**

- Land is not depreciated, and has unlimited life
- Improvements have a finite life, tied to their use, and are depreciated over this life

**Capitalization of Interest**

Interest is generally an expense of the period in which it is incurred, not a part of the cost of the related asset.

- An exception is made if the company constructs an asset and borrows money to finance the construction of the asset
  - a portion of the interest incurred during construction is part of the asset’s cost
  - this is referred to as capitalization of interest
  - the amount is based on the average accumulated expenditure during the period
    - beginning accumulated expenditures + ending accumulated expenditures \( \div 2 \)
    - cannot be greater than the actual interest incurred
- Land improvements, such as the costs of paving a parking lot, must be recorded separately and should be depreciated over its useful life.
Use and Depreciation of Property, Plant, and Equipment

Matching requires allocation of the acquisition cost over the useful life of an asset, consistent with the decline in usefulness:

- Usefulness declines because of physical deterioration, obsolescence, passage of time, exposure to the elements, or inadequate maintenance
- The allocation process is called depreciation
- All property, plant, and equipment, except land, have a limited life and decline in usefulness over time

Several depreciation methods are available

- Depreciation methods are all based on two estimates, the expected life of the asset, and the residual or salvage value at end of its life.
- Straight-line method assumes the expense is spread evenly over the asset’s life
  - depreciation each year is computed as follows:
    \[
    \text{Acquired Cost} - \text{Residual Value} \\
    \text{Life of asset}
    \]
  - the book value of asset is the cost of the assets minus its total accumulated depreciation to date
  - simplest method and most popular for annual reports to stockholders (Exhibit 8-3)
- Units-of-production method relates depreciation directly to the wear and tear of the asset as it relates to its use.
  - expense for a year is calculated based on actual units produced (used) during that year
  - Units in asset's life units are any measure of wear, including miles, machine hours, tons mined
  - depreciation per unit is computed as follows:
    \[
    \frac{\text{Acquired Cost} - \text{Residual Value}}{\text{Total number of units in asset’s life}}
    \]
  - the annual depreciation for a given year can be calculated based on the number of units produced during that year, as follows:
    \[
    \text{depreciation per unit} \times \text{units produced in current year}
    \]
  - depreciate until all expected units have been produced
  - this method should only be used if output over the useful life can be estimated with reasonable accuracy.

NOTE: Do not depreciate an asset below its expected residual value

- Accelerated depreciation methods assume assets decline in value more in the earlier years of life, so more expense is recorded in earlier years of life than in later ones
  - double declining-balance is the most common accelerated method
    - depreciation expense is calculated at twice the straight-line rate applied to the declining net book value over the asset's life
    - calculate the straight line rate: \(100\% \div \text{asset's life}\)
    - double it
    - multiply this rate each year by the asset's net book value at the beginning of that year
Step 1:
\[
\frac{100\%}{\text{asset’s useful life}}
\]
This determines the straight line rate

Step 2:
Multiply the straight line rate * 2

Step 3:
Depreciation = beginning book value * rate

The rate is applied to the full cost, not to the cost minus residual value, as in the other methods.

NOTE: For this method, unlike the others, residual is not deducted from the cost before multiplying by the depreciation rate

NOTE: Once again, the asset cannot be depreciated below its residual value

General observations:
- A company should use the method which accurately allocates the original cost to the expenses.
- Depreciation is an allocation method, NOT a valuation method
- Companies can use a different method for each asset, or for each group of assets (Exhibit 8-2)
- Depreciation involves no cash
- When an asset is used for less than 1 year, depreciation should only be taken on part of the year

Taxes:
- The company wants to minimize the tax burden over asset’s life
  - accelerated depreciation often does this best
- MACRS, the Modified Accelerated Cost Recovery System, is the prescribed accelerated tax method
- The choice of tax method is intended to minimize taxes over the life of the asset

LO 6
Change in Depreciation Estimate
Sometimes an estimate of life or residual value must be altered during the asset’s life.
- This is called a change in estimate
- A change in estimate should be recorded prospectively; that is, from the time of the change forward, with no adjustments to previous periods
- Remaining depreciable amount, the net book value less residual, should be depreciated over the remaining life of the asset
- Distinguished from a change in principle, for example the method of depreciation, which must be disclosed separately on the income statement
- If the change in estimate is material, the company should disclose the information in the footnotes of the financial statements
Capital versus Revenue Expenditures

Capital expenditure is a cost added to the acquisition or capitalized cost of the asset on the balance sheet.

Revenue expenditure is expensed to the income statement in the period in which it is incurred and not part of the cost of the asset.

- Distinction is based on management's judgment
- If the asset's life or productivity is increased, the expenditure is capitalized
- If it maintains the asset in normal operating condition, the expenditure is expensed
- Materiality is a factor, but a material expenditure should not be capitalized only because it is material
- Generally, the smaller the dollar amount, the more likely it will be specified as a revenue expenditure

Environmental Aspects of Operating Assets require a thorough investigation to determine the implications of environmental regulations may affect the value of the assets.

- There are few accounting guidelines in place
- Management must exercise careful judgment

Disposal of Property, Plant, and Equipment

Disposing of an asset occurs when the asset is sold, traded, or discarded.

- Requires two operations:
  - Update depreciation to date of sale
  - Calculate gain or loss on disposal by
    - First, determining the book value of the property being disposed of by subtracting the accumulated depreciation from the acquisition cost
    - And then computing the difference between the book value of the disposal asset and the value of the asset received (this may be cash or another asset).
  - The gain or loss appears in the “other income” section of income statement

Operating Assets: Natural Resources

Natural resources are tangible assets consumed as they are used and cannot be replenished in the near future.

- Natural resources are recorded on the balance sheet in the property, plant and equipment category and recorded at acquisition cost

Depletion of natural resources is the expensing of the portion of the natural resource used up during the current period, in the Property, Plant and Equipment category.

- Depreciation for each year is computed as follows:
  \[
  \text{Depreciation} = \frac{\text{Acquired Cost} - \text{Residual Value}}{\text{Estimated extracted}} \times \text{actual amount extracted}
  \]
- Natural resources are depleted, rather than depreciated
- Either the asset account may be reduced directly or a contra asset account may be used.
**Operating Assets: Intangible Assets**

**Intangible assets** are long-lived, with no physical properties

- Patents, copyrights, brand names, and logos are examples of intangible assets
- They have future economic benefit
- Balance sheet reflects their cost, but may not reflect the *true value* of these assets

Intangible assets should be listed on the balance sheet separately from plant, property, and equipment (Exhibit 8-7)

- Intangible assets are *amortized* rather than depreciated, essentially the same process with a different name, mechanically similar to straight-line depreciation
- When a business is purchased, **goodwill** is the excess of purchase price over market value of net assets
  - some investors believe this has no value, and the company simply paid too much for the assets acquired
  - international accounting allows either choice
  - *capitalize* excess of cost over net assets and amortize over a selected life
- Good will is recorded only when a business is purchased, which is the favored treatment of many non-U.S. companies
- **Organization costs** such as legal fees and permits, are incurred when a new corporation is formed
  - not treated as an expense due to their benefits, organizational costs are treated as an asset
  - amortized over a period of time
- The acquisition cost of an intangible asset, like any asset, is
  - all costs necessary to acquire and prepare it for use
  - any costs after acquisition necessary to the existence of the asset, such as legal cost to protect patents

**Research and development**, though it may provide future benefits, is expensed.

- **Amount** of future benefits is *uncertain*
- **Time period** it will benefit not easily established
- Many foreign firms permitted to capitalize some research and development on financial statements issued outside the U.S.
- Patent costs capitalized do not include research necessary to develop products patented

**Amortization of Intangibles**

**Amortization** is the allocation of the acquisition cost to the period benefited, not to exceed 20 years.

- **Straight-line** amortization is most often used
- Amortization is very similar to depreciation of property, plant and equipment
- Amortize over the legal life or the useful life of the asset, whichever is shorter
  - some assets, such as goodwill, have an uncertain useful life, and no legal life
    - the issue is whether these should be expensed at acquisition, or capitalized like land, with an unlimited life
    - the rule is a compromise position, allowing a company to amortize over no more than 40 years
  - must review amortization assumptions as time passes
    - if usefulness expires, remaining book value must be expensed
CHAPTER 8 — OPERATING ASSETS

Ratios involving long-term assets:

- **Average life**, if straight-line depreciation is used
  
  \[
  \text{average life} = \frac{\text{property, plant, and equipment}}{\text{depreciation expense}}
  \]

- **Average age** assuming straight-line depreciation is used
  
  \[
  \text{average age} = \frac{\text{accumulated depreciation}}{\text{depreciation expense}}
  \]

  - These ratios assume assets have been purchased fairly evenly over time

- **Asset turnover**, a profitability ratio, measures productivity of assets
  
  \[
  \text{asset turnover} = \frac{\text{net sales}}{\text{average total assets}}
  \]

  - This ratio is a measure of how many dollars of assets are necessary for every dollar of sales

Long-Term Assets and the Statement of Cash Flows

Account for acquisition, depreciation, disposal:

- **Acquisition** = investing activity, a cash outflow

- **Depreciation** = operating activity

  - Not a cash item, because it neither provides nor uses cash

  - Since it was deducted to arrive at net income, but required no cash, it is added back to net income when calculating cash provided by operations, indirect method

- **Disposal** = investing activity, a cash inflow

  - If gain or loss occurs, the gain or loss is eliminated from the operating section
    - It was added or subtracted to calculate net income
    - The gain or loss is not the amount of cash realized from the transaction
    - The sale of an asset is not an operating activity, but an investing activity
Lecture Suggestions

**LO 2**
Discuss examples of acquisition costs. To emphasize that the acquisition cost includes all costs, an example of a local construction project that involved a demolition, usually piques student interest. Note, some instructors prefer to discuss the topic of capital versus revenue expenditures—LO 7—at this point in time.

**LO 3**
An excellent illustration of a lump sum purchase is an apartment complex near campus in which the acquirer gets land, a parking lot, a building, appliances, and furniture.

**LO 5**
The double declining-balance method seldom "comes out even." Although most instructors are aware of company practices, such as switching to straight-line in the year when the DDB expense is less than expense would have been under straight-line, conveying all the possibilities to students leaves them thoroughly confused. The simplest approach is to teach them to abandon DDB in the last year and expense the difference between the remaining net book value and the residual value. Assignment and exam problems can be chosen in which the numbers come out close enough so that the final year needs only a small adjustment.

Note: some instructors may wish to teach the section on natural resources in conjunction with property plant and equipment.

**LO 6**
Define residual value. Explain that residual value is called salvage value and/or scrap value. Students will almost immediately comprehend residual value if it is illustrated with an automobile lease. Discuss how a business would choose which depreciation method to use, as well as the advantages and disadvantages of each. The text uses the same information for all illustrations. This gives the instructor an opportunity to compare the advantages and disadvantages of each type of depreciation method. Give an example of how an asset is depreciated when sold during the middle of the year.

**LO 7**
Capital expenditures are costs which increase the asset’s life or its productivity. Students may assume that the cost is the price. Give examples of items which would be calculated as part of the total cost of the long-term asset. Also discuss when revenue expenditures would occur and give example of those situations. This topic provides and excellent opportunity for illustrating the judgment required of accountants in determining whether certain expenditures should be capitalized or expensed.

**LO 8**
In discussing gains and losses, it is important for students to grasp that the existence of a gain or loss and its magnitude may be entirely a function of the amount of depreciation, amortization, or depletion.

Note, some instructors prefer to teach the section on natural resources at the same time that LO 5 is covered. Ask students to give examples of natural resources. Discuss how depletion of natural resources is similar to depreciation. Point out that natural resource depletion is simply the units of production process.

**LO 9**
Review the list of intangible assets listed in Exhibit 8-5 to ensure student’s understanding of the various types of assets which are amortized. Point out that intangibles, for the most part, are legal rights, and that if these rights are internally developed only the legal costs of protecting the rights are treated as an asset. The question of the value of goodwill provides an interesting point for a class discussion. Discuss goodwill and explain how goodwill is determined. This subject may cause confusion with the students. They may understand the concept, but have difficulty conceptualizing how goodwill is determined. Ask students whether a business is worth no more than the net current value of its assets?
Projects and Activities

Balance Sheet Disclosures

Outside assignment: Your personal balance sheet

Did you do a personal balance sheet in Chapter 1? If so, review this assignment now. Concentrate on the asset section.

- Which of your assets are long-lived assets? Can you assign these a useful life and a residual value? List the factors you considered in assigning these values.
- Are your personal assets depreciating? Explain.
- Do you have any intangible assets? What are they?
- What portion of your total assets are long-lived assets? You may now want to rearrange your balance sheet to conform to the proper presentation format, separating your current and long-lived assets.

Solution

Of course there is no “right” answer to this. The question helps the students to think of assets in real terms, as “their” assets.

- Personal assets do have lives. The lives depend not on how long the item could possibly last, physically, but on how long the owner will actually keep and use the asset, which might be different from the physical life. This will also affect residual value.
- Personal assets depreciate like any other asset. A car is a good example to use, perhaps citing the familiar comment that it loses value the moment it is driven out of the showroom.
- The occasional student will have a patent or a copyright, so intangibles are not out of the question. When students organize their own balance sheet they gain new perspective, looking at the “forest”, while we spend a lot of time in class looking at the “trees.”

In-class discussion: Assets on the balance sheet

Do all balance sheets have the same format? Is there a rule that says items must be presented in a specific order, or do companies have flexibility, as long as they present the required information in a way that readers can find it, and compare it to other companies?

Consider the following assets from the annual report of an actual company at December 31, 1998 (in thousands of dollars).
Assets

Utility Plant, at original cost:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric</td>
<td>$9,570,547</td>
</tr>
<tr>
<td>Other</td>
<td>195,325</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>9,765,872</td>
</tr>
<tr>
<td>Less: Accumulated provision for depreciation</td>
<td>4,224,416</td>
</tr>
<tr>
<td>PSNH acquisition costs</td>
<td>352,855</td>
</tr>
<tr>
<td>Construction work in progress</td>
<td>143,159</td>
</tr>
<tr>
<td>Nuclear fuel, net</td>
<td>133,411</td>
</tr>
<tr>
<td><strong>Total net utility plant</strong></td>
<td><strong>6,170,881</strong></td>
</tr>
</tbody>
</table>

Other Property and Investments:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear decommissioning trusts, at market</td>
<td>619,143</td>
</tr>
<tr>
<td>Investments in regional nuclear generating companies, at equity</td>
<td>85,791</td>
</tr>
<tr>
<td>Investments in transmission companies, at equity</td>
<td>17,692</td>
</tr>
<tr>
<td>Other, at cost</td>
<td>136,812</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>859,438</td>
</tr>
</tbody>
</table>

Current Assets:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalents</td>
<td>136,155</td>
</tr>
<tr>
<td>Investments in securitizable assets</td>
<td>182,118</td>
</tr>
<tr>
<td>Receivables, less accumulated provisions for uncollectable Accounts of $2,416 in 1998 and $2,052 in 1997</td>
<td>237,207</td>
</tr>
<tr>
<td>Accrued utility revenues</td>
<td>42,145</td>
</tr>
<tr>
<td>Fuel, materials and supplies, at average cost</td>
<td>202,661</td>
</tr>
<tr>
<td>Recoverable energy costs, net—current portion</td>
<td>67,181</td>
</tr>
<tr>
<td>Prepayments and other</td>
<td>65,440</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>932,907</td>
</tr>
</tbody>
</table>

Deferred Charges:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory assets</td>
<td>2,328,949</td>
</tr>
<tr>
<td>Unamortized debt expense</td>
<td>40,416</td>
</tr>
<tr>
<td>Other</td>
<td>54,790</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,424,155</td>
</tr>
</tbody>
</table>

**Total assets**

$10,387,381

What kind of company do you think this is?

Why do you think they presented their balance sheet as they did? Do you think you might find other similar companies do the same? Is there anything logically wrong with the presentation?

This statement contains many industry-specific terms. Where would you look to find clarification?

Which of the assets, based only on your reading of this statement, are intangible assets? What is their value to the company? Are they significant?

**Solution**

It is useful to occasionally show students that statements are not products of a formula. A company uses a format that best shows their individual operation.

The subject statement is that of Northeast Utilities (NU), among the 20 largest electric utility companies in the United States. Power generating plants are their largest, most important asset, therefore the company lists them first on the balance sheet.

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Many utilities have a similar presentation. Although the order may seem unusual to one accustomed to retailers, it is not unusual for a utility company. For this type of business, this is the most logical format.

NU’s deferred charges are listed in footnote 1H of the company’s financial statements. These charges consist of long-lived intangible assets, and require a serious reading of the footnotes to the financial statements and perhaps even a telephone call, depending on your familiarity with utilities to fully understand them. Students can look over the list and make a judgment based on familiar terminology (for example, “amortizable property improvements”) and what they have read in their text to decide what most items are. Students do not have to understand all the details. The more often they do an exercise like this, the less intimidated they will be with unfamiliar statements.

As noted above, many of the assets shown are intangible. They are significant, although the power plant dominates all other assets. Their value lies in future benefits to be received.

**Group Purchase**

**Food for thought: What does it cost to acquire an asset?**

Prepare a list of assets that require more than a simple purchase to be put to use. Ask students, perhaps in teams, to list the costs that would be involved in preparing one of these assets for use. Some possible examples are a mainframe computer system; a delivery truck; purchase of land and a building with the intent of building the company's new corporate headquarters on the cleared site; land holding a former manufacturing building to be converted to an office building.

**Solution**

The items that students will list depend on the asset chosen (you probably have your own favorites) and the imagination of the students as they think of potential obstacles to installation. The following short lists are starting points.

**Mainframe computer:** The obvious items are the machine, applicable sales tax, and transportation to the buyer's site. The manufacturer usually packs the machine for shipping, and unpacks at the customer's site, charging for this service. They install the machine, but first the customer must prepare the room in which the computer will be housed, with proper air conditioning and ventilation, a sub-floor for electrical cable, adequate power, and special “uninterrupted power service” in case of power failure. All of this could involve some major construction expense. Once the computer is installed, the seller tests the system. Finally, the buyer's operators are trained by the manufacturer's representatives, sometimes at the customer's expense, in the use of the system. Only then is it finally “turned over” to its owners.

**Delivery truck:** This is a good one for what it does not include. Most students have some experience buying cars, so they would know about the sticker price, taxes, transportation, title, and so on. The company may want some extras not standard with the vehicle, such as interior appointments, special tires, two-way radio, and so on, adding to the cost. However, such things as license, insurance, and excise tax are routine, recurring items, which although required to run the van do not enhance its value or life span, and they are expensed. Even if the dealer delivers the truck ready to roll, these items are itemized separately on the invoice and expensed.

**Land and existing building:** This is a group purchase, with additional costs to prepare the items for their intended use. The initial cost is for land and a building, but if the buyer does not want the existing building, then what was really bought was land. The building has no (or negative) value. Is the cost of demolition part of the cost of the land, or of the new building? Majority opinion holds that it is a cost of preparing the land for its intended use. The usual costs of building the new structure, including capitalized interest while construction is underway, are included in the cost of the new building.

**Land and a building to be converted:** In this case, since the old building is to be kept, albeit considerably altered, it does have value, and the initial cost must be allocated between the land and the
Capital Versus Revenue Expenditures

In-class discussion: Capitalization versus expense

A 1991 article in the *Wall Street Journal* \(^2\) said that an investigation of Amre, Inc. disclosed that the company “…improperly capitalized its marketing costs, such as the cost of purchasing mailing lists, instead of treating the costs as expenses.”

- Why is a mailing list expensed rather than capitalized? Doesn't a mailing list have future value to the company?

- What effect would Amre's action have had on the income statement and balance sheet? Is this effect permanent, or a timing difference? If the effect is only a timing difference, does that make it less of a problem?

**Solution**

- The problem with capitalizing a mailing list is the indeterminate future value. Until the list has been in use for a while, the potential value to the company in future earnings is difficult to quantify. The life of the benefit is also uncertain. Mailing lists are similar to R & D expense. Both may have value, but the amount and the life are uncertain. Conservatism dictates that they be expensed as costs are incurred.

- Capitalizing these amounts inflated income for the year of purchase, and decreased income over the years the mailing lists were being amortized. Assets were overstated in the years of purchase and in all subsequent years until the “asset” was completely written off, a timing difference. That does not make Amre's action negligible. All the years concerned are still incorrect.

**Ethical decision: Capitalize or expense**

A messenger/delivery service company owns a fleet of six minivans. Each driver is responsible for scheduling routine maintenance on his or her van, including oil changes, tune-ups, tires. The owner of the company learned that one of the drivers has neglected to schedule regular maintenance. His van, which is 1.5 years old, has never had an oil change. The van came to a sudden, permanent halt during its rounds yesterday. The garage said that the damage to the engine is so severe that the engine must be replaced. The mechanic can install a rebuilt engine for a cost of $6,000.

The van was purchased for $30,000 and is being depreciated over 5 years, with a $5,000 residual value. The rebuilt engine should last the company 4 years under expected operating conditions, that is, about the same length of time the original engine would have run had it been maintained. The company’s owner is upset about the expenditure and its potential impact on the company's operating results. He wants to capitalize the $6,000, and add two years to the original life of the van.

- Is the accounting treatment of the new engine a “judgment call” that could go either way? What do you believe to be the correct accounting for this item?

- Why is the way this expenditure is accounted for important? Who is harmed by incorrect accounting?

**Solution**

- This decision might be construed by some as a judgment call, but it really is not. The engine in the van was not brand-new, but it was nearly so. It could have run for another 3.5 years with proper maintenance. It had to be replaced because of misuse, not because of normal wear and tear. This was a repair to bring the van back to its normal operating condition at the

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time, not an improvement. The change in expected life was immaterial. The only judgment call involved was the difference between 4 and 3.5 years for the life of the new and old engines.

- The owner of the company wants to capitalize an expense item, overstating income in the current year and understating it for the next 5, given the new life of 7 years. This will also overstate the value of the asset on the balance sheet by 17% ($5000 ÷ 30,000). The harm is done to the readers of the financial statements who expect accurate allocation of costs to the periods they benefit. The van is given a life it is not expected to fulfill. Generally accepted accounting principles require the life over which an asset is depreciated to be its actual expected life.

Disposal of Operating Assets

Outside assignment: Impact of disposals

Suppose that Time Warner owns a piece of cable television equipment with an original cost of $450,000. Accumulated depreciation is $390,000. Consider each of the following cases separately:

- Time Warner sells the asset for $75,000. What is the gain or loss?
- Time Warner sells the asset for $50,000. What is the gain or loss?
- Time Warner cannot find a buyer for the asset, and pays $5,000 to have it removed. What is the gain or loss?
- Time Warner donates the asset to the local trade school, who disassembled and hauled it away themselves. What is the gain or loss for Time Warner?
- A small fire destroys part of the building, including this equipment. The insurance company has agreed to send Time Warner a check in settlement of the claim, which will include $580,000 for replacement of the machine. The company insures its long-lived assets at replacement cost. What is the gain or loss?
- If you were to prepare a journal entry for each transaction, what would be identical in each entry? What would be different?
- Does the insurance settlement surprise you? How would it be reported in Time Warner’s financial statements if they were prepared the day after the check arrived? Should they record a gain from a disaster? Is this an ethical problem for the company?
- Do individuals insure anything at replacement cost? Is it a good idea, for either a company or an individual, to pay extra for this type of insurance? Why or why not?

Solution

- To sell the asset for $75,000:
  
  \[ Gain \text{ on retirement of assets} = 15,000 \]

- To sell the asset for $50,000:
  
  \[ Loss \text{ on retirement of asset} = 10,000 \]

- To pay to have the asset removed:
  
  \[ Loss \text{ on retirement of asset} = 65,000 \]

- To donate the asset:
  
  \[ Loss \text{ on retirement of asset} = 60,000 \]

- To record destruction of the asset and expected insurance settlement:
  
  \[ Gain \text{ on retirement of asset} = 520,000 \]

Most students are reluctant to accept recording a gain from a disaster. An accounting entry only records the transaction. Obviously the follow-up will be the purchase of a new machine,
using the cash settlement.  No moral or ethical problem is involved here, only the recording of an expected cash receipt.

- For individuals, the most familiar type of replacement value insurance is that which is carried on homes.  Few of us would want our home and possessions insured for their purchase price.  For many homes this might hardly replace the garage. Automobiles are insured for replacement cost, but this is the current “Blue Book” value or replacement of your car with another the same age, in similar condition.  For commercial concerns, replacement cost may have a broader meaning, and the insurance will cost proportionately more depending on the likelihood of loss, or depending on the item insured.  Companies insure for the same reason that individuals do, for protection.  Companies want to protect their assets from a catastrophic loss that might seriously impair their ability to continue in business.  For this reason, insuring for replacement cost makes good business sense.

**Ethical decision: Is residual value important?**

You are an assistant controller for a company with a number of operating segments.  Each division has a divisional controller who reports to the division director.  These controller/director teams make many financial decisions for their divisions, but are expected to adhere to guidelines set forth by the corporate accounting department.  Your duties include working closely with all the division controllers in gathering and analyzing monthly operating results.

While you are preparing quarterly budget figures, it occurs to you that there are no residual values for the long-lived assets in one division.  You investigate further and find that in reality none of this division’s assets have residual values.  You think this is a bit odd because similar assets with similar lives elsewhere in the company do have residual values.  You decide to speak with the divisional controller to clear up the mystery.

The discussion deepens your anxiety.  The division director has specified that assets be given a residual value of zero, and the controller, who has held his position since the division began ten years ago, carries out this policy.  The director believes that estimates are “accounting magic” and have doubtful value.  Although he can accept the estimate of a finite useful life, he believes that the residual is no more than a guess and has no place in his business.  “Who knows what they'll be worth when we're through with them?”  He says that the division always negotiates the best price possible when the assets are replaced, and takes any gain or loss at that time, when a “real” number is available.

Back in your office you think over what you have found.  The division is a large and very powerful one in the company, with substantial dollars invested in equipment.  Communicating this discovery to your boss, the corporate controller, is going to put you in the middle of a politically volatile situation.

What should you do?  Consider the following items in your answer:

- What is a residual value? Where is it determined? Why is it subtracted from cost before depreciation expense is calculated?
- What impact does the choice (or lack) of a residual value have on the income statement and balance sheet of an entity in the year the asset is purchased? During the asset's life? In the year of disposal of the asset?
- Which fundamental accounting principle(s) govern(s) this situation?

**Solution**

- A residual value is the amount the company expects to realize from the sale of an asset when it is no longer of use to them.  Residual is not included in the amount to be depreciated, and thus is not expensed, because the company expects to recover it at the end of the asset’s life.  It will never be an expense.  The residual amount is determined by past experience, and by any research the company might do concerning the asset's future market value.
CHAPTER 8 — OPERATING ASSETS

Residual has no impact on the purchase of the asset. However, as soon as depreciation begins to be recorded—generally in the year of purchase—the impact is felt. If residual is not deducted from the amount to be depreciated, expense is overstated each year of the asset's life, the net book value of the asset is understated on the balance sheet, and in the year of disposal, the gain is overstated (or the loss understated) on the disposal. The balance sheet at the end of this last year, of course, will finally be correct—it will show a zero balance after disposal. However, income was understated during the life of the asset, and overstated the year of disposal. Incorrect allocation of cost over the life of the asset violates the matching principle.

The controller will have no choice but to insist that the situation be corrected, and proper residual values be assigned. The correction process will involve a change in divisional policy imposed from management. This division's policy is not in accordance with generally accepted accounting procedure, and probably the only reason the company's outside auditors have not noticed the errors is that these assets are merged with others in the company. If the outside auditors did discover the practice, they would insist on an immediate correction. Your professional responsibility dictates that you must take steps to ensure the correction of the problem.

Intangible Assets

Outside assignment: Are customers a depreciable asset?

In 1987, The Herald Co., a Michigan company, merged with the Newark Morning Ledger Co., a New Jersey company. Both companies were newspaper publishers. The Herald's value included $68 million in “non-tangible” assets—the newspapers' customers. A Boston Globe article in 1992 revealed that the newspapers were bringing a case before the United States Supreme Court, probably to be decided in the following year, after a 1990 federal lawsuit “…sought to claim the subscribers as a depreciable asset—such as machinery or inventory—worth an estimated $10 million in tax savings.” The IRS disallowed the deduction. The company planned to depreciate the asset over 14 to 23 years, the time over which they estimated customers would either die, move away, or change their reading tastes.

Are customers an asset? Do not view this from a tax perspective, where IRS rules govern, but from what you have learned about what is or is not an asset. Are they an asset whose cost can be reasonably estimated and recorded? If you think so, how would you value this asset? What life would you give it?

Re-read the quote from the article. Do you find an item that does not seem correct to you?

What argument can you make for not capitalizing customer lists?

As an accountant who has to explain in the current annual report the potential results of this litigation, draft a memo to management with your opinion as to the outcome of this case. The memo should include your answers to the above questions.

Solution

There are similarities between this and the Amre case (LO 2, In-class discussion).

Finding a “cost” of this asset might be difficult. The newspaper capitalized the customers at management's estimate of future income to be earned. Presumably the estimates of how long the customers remain is based on past experience, a perfectly legitimate way to estimate life.

The article interestingly calls inventory a “depreciable asset.” Not too many accountants would agree with that statement. Hopefully a number of students will notice this error.

The uncertainty of the value of the asset and its life are still issues. For information purposes (students are not asked to make the decision from a tax viewpoint), the IRS originally disallowed this item on the grounds that it was similar to goodwill, in that it was the

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3The Boston Globe, April 7, 1992, “Court to Rule on Treating Customers as Depreciables.”
company's reputation with its customers that was being capitalized. IRS rules do not allow goodwill amortization as a deductible expense. Further, the IRS argued that the company had no contract with the customers, and thus no guarantee of their continued business. Customers could cancel at a moment's notice with no penalty. This point is certainly also a strong argument against capitalizing for reporting purposes. The new company was called the Morning Ledger Co. In 1993, the Supreme Court decided by a vote of 5 to 4 to permit the company to depreciate its subscription list acquired in conjunction with the purchase. Library research in this case would be counterproductive, since the goal was for students to think the case through in financial accounting terms, not on the legal rational.

**Amortization of Intangibles**

**Food for thought: Depletion and amortization versus depreciation**

Depreciation of plant, property or equipment is credited not to the asset account itself, which is maintained at historical cost, but to a separate contra asset, accumulated depreciation. However, depletion of natural resources and amortization of intangibles is often credited directly to the asset. What characteristics of natural resources and intangible assets, versus tangible assets, can you name that would explain this difference in treatment?

**Solution**

Property, plant, and equipment are “things.” That is, they have physical substance. They age as you use them, but they are still “all there.” A 5 year-old desk still has all the pieces it had when it was new, they are just older, shabbier, faded, perhaps less attractive. A machine may not work as well because of wear and tear, yet it is still a complete machine. On the other hand, a patent never had a physical substance since it was an intangible asset. As the asset is amortized, it is written off directly to the patent. When the patent is completely amortized, the patent no longer exists. Depletion, on the other hand, involves physically diminishing an asset: trees are chopped down, coal is removed from a mine, and oil is pumped out of a well. When the last tree, or ton, or gallon is gone, the asset is truly of no further use, even if some evidence (a hole, a barren field) is left. What was of value to the company is literally gone. Diminishing the asset when preparing the depletion entry is logical.

**In-class discussion: Allergan’s asset lives**

Allergan included the following in a footnote to their annual report:

LONG-LIVED ASSETS

Property, plant, and equipment are stated at cost. Additions, major renewals and improvements are capitalized, while maintenance and repairs are expensed. Upon disposition, the net book value of assets is relieved and the resulting gains or losses are reflected in earnings. For financial reporting purposes, depreciation is generally provided on the straight-line method over the useful life of the related asset. Accelerated depreciation methods are generally used for income tax purposes.

Goodwill represents the excess of acquisition costs over the fair value of net assets of purchased businesses and is being amortized on a straight-line basis over periods from 9 to 30 years. Intangibles include patents, licensing agreements, and marketing rights which are being amortized over their estimated useful lives. Amortization expense was $21.6 million in 1996, $14.3 million in 1995, and $10.2 million in 1994.

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4 The full text of the case can be found in the Journal of Corporate Taxation, Volume 20, Issue 4, Winter, 1994, pages 315-325.

5 Allergan, 1996 Annual Report, Note 1, page 34.
Long-lived assets and certain identifiable intangibles are reviewed for impairment in value based upon undiscounted future cash flows, and appropriate losses are recognized, whenever the carrying amount of an asset may not be recovered.

- By using the straight-line method of depreciation for reporting assets, what assumption about the usefulness of assets is the company making? Do you think this was the primary consideration in choosing the straight-line method?

- What is the impact on the income statement of using accelerated methods of depreciation for tax purposes? What is the impact on the balance sheet? What is the impact on cash?

- If Allergan switched to accelerated depreciation for reporting purposes, how would net income change? Would you recommend that they make this switch in order to bring the book and tax expenses “in line”? Do you think this is a change in principle or a change in estimate?

- What is the difference between a “major renewal” and a “repair”? Why is the former capitalized and the latter expensed?

- How might an asset become “impaired”? Explain, citing specific examples.

**Solution**

- Straight-line depreciation assumes the asset is equally useful throughout its life. The primary consideration in selecting a depreciation method was probably the simplicity of straight-line, coupled with the belief that no significant error in any individual year would result from not using an alternative.

- The income statement reports income tax expense based on reported income, so the tax treatment does not affect reported income. However, the balance sheet will divide the liability between current taxes due, and a deferred liability or asset resulting from the difference between reported and tax income. For most companies the amount of new deferrals is often larger than the decreases to the deferral accounts. Cash will be saved in the early years of assets’ lives, and thus the remaining cash balance will be larger if accelerated depreciation is used for tax purposes.

- If Allergan switched to accelerated depreciation for reporting purposes, a change in principle, income in the early years of assets’ lives would be lower, and increase in later years. Such a switch is hardly justifiable, since no rule requires, or even indicates a preference for, a “matching” of reporting and tax expense. On the other hand, a change would create a lot of work, requiring prior years’ restatement, and might arguably cause unrealistic skewing of income in the years concerned, to no apparent benefit, unless the company established that the accelerated method actually was a better reflection of the use of the assets.

- A major renewal extends the life of an asset beyond original expectations, and/or increases its residual value. A repair simply returns the asset to its normal operating condition.

- An impairment can occur by accident or chance or the passage of time. A loan or account may not be fully collectible. Purchased assets may not fulfill their expected purpose. A licensed product may not sell as well as predicted. A patented item may be made obsolete by new technology.
Outside assignment: Time Warner property, plant, and equipment

Time Warner lists the following property, plant, and equipment on their 1998 balance sheet\(^6\) ($ million):

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and buildings</td>
<td>963</td>
</tr>
<tr>
<td>Cable television equipment</td>
<td>1,035</td>
</tr>
<tr>
<td>Furniture, fixtures and other equipment</td>
<td>1,400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,398</strong></td>
</tr>
<tr>
<td>Less: accumulated depreciation</td>
<td>(1,407)</td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>1,991</td>
</tr>
<tr>
<td>Music catalogues, contracts and copyrights</td>
<td>876</td>
</tr>
<tr>
<td>Cable television franchises</td>
<td>2,868</td>
</tr>
<tr>
<td>Goodwill</td>
<td>11,919</td>
</tr>
<tr>
<td>Other assets</td>
<td>863</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18,517</strong></td>
</tr>
</tbody>
</table>

- Why is no depreciation taken for the catalogues, contracts, copyrights, franchises, goodwill and other assets? What kind of assets are these? Does their value decline over time? Explain.
- Is $18,517 million the “net worth” of Time Warner’s long-lived assets? Explain precisely what this number represents for Time Warner.

Solution

- The *intangible assets* listed are not depreciated, they are amortized. The principle is the same, only the vocabulary is different. The assets, in accordance with generally accepted accounting procedures, are listed net of their accumulated amortization. Amortization expense and accumulated amortization are disclosed in a footnote to their financial statements. Their value does decline over time. Time Warner amortizes them using the straight-line method, implying that their value remains reasonably constant throughout their useful lives.

- “Net worth” can have many meanings and cannot be used without clarification. The net book value of the assets, $18,517 million, is their cost less accumulated depreciation and amortization. That represents the remaining usefulness of the original investments to the company. It may be more or less than the assets’ current fair market value, although it is unlikely to be materially more, since that would mean that the assets were impaired, and should be written down.

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