

CHAPTER

# 10

## Long-Term Assets: Fixed and Intangible

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# Nature of Fixed Assets

- **Fixed assets** are long-term or relatively permanent assets such as equipment, machinery, buildings, and land.
- Other descriptive titles for fixed assets are *plant assets* or *property, plant, and equipment*.
- Fixed assets have the following characteristics:
  - They exist physically and, thus, are *tangible* assets.
  - They are owned and used by the company in its normal operations.
  - They are not offered by sale as part of normal operations.

# Classifying Costs

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- A cost that has been incurred may be classified as a fixed asset, an investment, or an expense.
- Classifying a cost involves the following steps:
  - Step 1. Is the purchased item long-lived?
    - If *yes*, the item is recorded as an asset on the balance sheet, either as a fixed asset or an investment. Proceed to Step 2.
    - If *no*, the item is classified and recorded as an *expense*.
  - Step 2. Is the asset used in normal operations?
    - If *yes*, the asset is classified and recorded as a *fixed asset*.
    - If *no*, the asset is classified and recorded as an *investment*.

# Classifying Costs

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- Items that are classified and recorded as fixed assets include land, buildings, or equipment.
  - Such assets normally last more than a year and are used in the normal operations.
- Investments are long-lived assets that are not used in the normal operations and are held for future resale.
  - Such assets are reported on the balance sheet in a section entitled *Investments*.

# The Cost of Fixed Assets

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- Only costs necessary for preparing the fixed asset for use are included as a cost of the asset.
- Unnecessary costs that do not increase the asset's usefulness are recorded as an expense. These include the following:
  - Vandalism
  - Mistakes in installation
  - Uninsured theft
  - Damage during unpacking and installing
  - Fines for not obtaining proper permits from governmental agencies

# The Cost of Fixed Assets

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- Direct costs incurred in the construction of a fixed asset, such as labor and materials, should be capitalized as a debit to an account entitled *Construction in Progress*.
- When the construction is complete, the costs are reclassified by crediting *Construction in Progress* and debiting the proper fixed asset account such as *Building*.

# Leasing Fixed Assets

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- A *lease* is a contract for the use of an asset for a period of time.
- The two parties to a lease contract are as follows:
  - The *lessor* is the party who owns the asset.
  - The *lessee* is the party to whom the rights to use the asset are granted by the lessor.

# Leasing Fixed Assets

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- Leasing an asset has the following advantages:
  - The lessee has access to an asset without having to spend funds or obtain financing to buy the asset.
  - Expenses such as repair and maintenance costs may be the responsibility of the lessor.
  - The risk of incurring additional cost because the asset becomes obsolete before the end of its useful life can be mitigated.



# Accounting for Depreciation

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- Over time, fixed assets, with the exception of land, lose their ability to provide services.
  - Thus, the costs of fixed assets such as equipment and buildings should be recorded as an expense over their useful lives.
- Recording the cost of fixed assets as an expense is called **depreciation**.
  - Because land has an unlimited life, it is not depreciated.

# Accounting for Depreciation

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- Depreciation can be caused by physical or functional factors.
  - *Physical depreciation* factors include wear and tear during use or from exposure to weather.
  - *Functional depreciation* factors include obsolescence and changes in customer needs that cause the asset to no longer provide services for which it was intended.

# Accounting for Depreciation

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- Two common misunderstandings that exist about depreciation as used in accounting include:
  - Depreciation does not measure a decline in the market value of a fixed asset.
    - Instead, depreciation is an allocation of a fixed asset's cost to expense over the asset's useful life.
      - Thus, the **book value** of a fixed asset (cost less accumulated depreciation) usually does not agree with the asset's market value.
  - Depreciation does not provide cash to replace fixed assets as they wear out.

# Factors in Computing Depreciation Expense

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- The three factors that determine the depreciation expense for a fixed asset are as follows:
  - The asset's initial cost
  - The asset's expected useful life
  - The asset's estimated residual value

# Factors in Computing Depreciation Expense

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- The **initial cost** of a fixed asset is the purchase price of the asset plus all costs to obtain and ready it for use.
- The **expected useful life** of a fixed asset is the estimated length of time the asset will be used in normal operations.
  - It is estimated at the time the asset is placed into service.
  - Estimates of expected useful lives are available from industry trade associations.

# Factors in Computing Depreciation Expense

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- The **residual value** of a fixed asset is the estimated value of the asset at the end of its useful life.
  - It is estimated at the time the asset is placed into service.
  - Residual value is sometimes referred to as *scrap value*, *salvage value*, or *trade-in value*.
- The difference between a fixed asset's initial cost and its residual value is called the asset's **depreciable cost**.
  - This is the asset's cost that is allocated over its useful life as depreciation expense.
  - If a fixed asset has no residual value, then its entire cost should be allocated to depreciation.

# Depreciation Methods

- The three depreciation methods used most often are as follows:
  - Straight-line depreciation
  - Units-of-activity depreciation
  - Double-declining-balance depreciation
- It is not necessary for a company to use only one method of computing depreciation for all of its fixed assets.

# Straight-Line Method

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- The **straight-line method** provides for the same amount of depreciation expense for each year of the asset's useful life.
- Computing straight-line depreciation may be simplified by converting the annual depreciation to a percentage of depreciable cost.
- The straight-line percentage is determined by dividing 100% by the number of years of expected useful life.



# Straight-Line Method

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- Accumulated depreciation accounts are called *contra accounts*, or *contra asset accounts*.
  - This is because accumulated depreciation accounts are deducted from their related fixed asset accounts on the balance sheet.
- The difference between the fixed asset account and its related accumulated depreciation account is called the asset's **book value** or *net book value of the asset*.

# Units-of-Activity Method

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- The **units-of-activity method** provides the same amount of depreciation expense for each unit of activity of the asset. Depending on the asset, the units of activity can be expressed in terms of hours, miles driven, or quantity produced.
- The units-of-activity method may also be called the *units-of-production method* or *units-of-output method*.

# Units-of-Activity Method

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- The units-of-activity method is applied in the following two steps:

- Step 1. Determine the depreciation per unit as follows:

$$\text{Depreciation per Unit} = \frac{\text{Cost} - \text{Residual Value}}{\text{Total Estimated Units of Activity}}$$

- Step 2. Compute the depreciation expense as follows:

$$\text{Depreciation Expense} = \text{Depreciation per Unit} \times \text{Units of Activity for Period}$$

# Double-Declining-Balance Method

- The **double-declining-balance method** provides for a declining periodic expense over the expected useful life of the asset.
  - The double-declining-balance method is applied in the following three steps:
    - Step 1. Determine the straight-line percentage, using the expected useful life.
    - Step 2. Determine the double-declining-balance rate by multiplying the straight-line rate (from Step 1) by 2.
    - Step 3. Compute the depreciation expense by multiplying the double-declining-balance rate (from Step 2) times the book value of the asset. (For the first year, the book value of the asset is its initial cost.)

# Partial-Year Depreciation

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- A fixed asset may be purchased and placed in service other than the first month of an accounting period.
  - In such cases, depreciation is prorated based on the month the asset is placed in service.

# Partial-Year Depreciation

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- Assets may also be placed in service other than the first day of a month.
  - In such cases, assets placed in service during the first half of a month are normally treated as having been purchased on the first day of *that* month.
  - Likewise, asset purchases during the second half of a month are treated as having been purchased on the first day of the *next* month.

# Partial-Year Depreciation: Straight-Line Method

- Under the straight-line method, depreciation is prorated based on the number of months the asset is in service.

# Partial-Year Depreciation: Units-of-Activity Method

- The units-of-activity method computes depreciation expense using an activity rate and the activity level for the period.



# Partial-Year Depreciation: Double-Declining-Balance Method

- Like straight-line depreciation, if an asset is used for only part of a year, the annual double-declining-balance depreciation is prorated based on the number of months the asset is in service.
- The second-year depreciation would be computed by multiplying the book value on January 1 of the second year by the double-declining-balance rate.

# Revising Depreciation Estimates

- Estimates of residual values and useful lives of fixed assets may change due to abnormal wear and tear or obsolescence.
- When new estimates are made by management, they are used to determine the depreciation expense in future periods. The depreciation expense recorded in earlier years is not affected.

# Repairs and Improvements

- Once a fixed asset has been acquired and placed into service, costs may be incurred for ordinary maintenance and repairs.
  - Costs that benefit only the current period are called **revenue expenditures**.
- In addition, costs may be incurred for improving an asset or for extraordinary repairs that extend the asset's useful life.
  - Costs that improve the asset or extend its useful life are called **capital expenditures**.

# Ordinary Maintenance and Repairs

- Costs related to the ordinary maintenance and repairs of a fixed asset are recorded as an expense of the current period.
  - Such expenditures are *revenue expenditures* and are recorded as increases to Repairs and Maintenance Expense.

# Extraordinary Repairs

- After a fixed asset has been placed into service, costs may be incurred to extend the asset's useful life.
  - Such costs are *capital expenditures* and are recorded as a decrease in an accumulated depreciation account.

# Asset Improvements

- After a fixed asset has been placed into service, costs may be incurred to improve the asset.
  - Such costs are *capital expenditures* and are recorded as increases to the fixed asset account.

# Discarding Fixed Assets

- If a fixed asset is no longer used and has no residual value, it is discarded.
- The discarded asset and its accumulated depreciation are removed from the accounts and ledger.
- If an asset has not been fully depreciated, depreciation should be recorded before removing the asset from the accounting records.

# Selling Fixed Assets

- The entry to record the sale of a fixed asset is similar to the entry for discarding an asset. The only difference is that the receipt of cash is also recorded.
  - If the selling price is more than the book value of the asset, a gain is recorded.
  - If the selling price is less than the book value, a loss is recorded.



# Natural Resources

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- The characteristics of natural resources are as follows:
  - **Naturally Occurring:** An asset that is created through natural growth or naturally through the passage of time. For example, timber is a natural resource that naturally grows over time.
  - **Removed for Sale:** The asset is consumed by removing it from its land source. For example, timber is removed for use when it is harvested, and minerals are removed when they are mined.
  - **Removed and Sold over More Than One Year:** The natural resource is removed and sold over a period of more than one year.

# Natural Resources

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- Natural resources are classified as a type of fixed asset.
- The cost of a natural resource includes the cost of obtaining and preparing it for use.

# Natural Resources

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- As natural resources are harvested or mined and then sold, a portion of their cost is debited to an expense account called **depletion expense**.
- Depletion is determined as follows:
  - Step 1. Determine the depletion rate as follows:

$$\text{Depletion Rate} = \frac{\text{Cost of Resource}}{\text{Estimated Total Units of Resource}}$$

- Step 2. Multiply the depletion rate by the quantity extracted from the resource during the period.

$$\text{Depletion Expense} = \text{Depletion Rate} \times \text{Quantity Removed}$$

# Intangible Assets

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- Long-term assets that are used in the operations of the business, but they do not exist physically, are called intangible assets.
- **Intangible assets** may be acquired through innovative, creative activities or from purchasing the rights from another company.
- Examples of intangible assets include:
  - Patents
  - Copyrights
  - Trademarks
  - Goodwill

# Intangible Assets

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- The accounting for intangible assets is similar to that for fixed assets. The major issues are:
  - Determining the initial cost.
  - Determining the **amortization**, which is the amount of cost to transfer to expense.
    - Amortization results from the passage of time or a decline in the usefulness of the intangible asset.

# Patents

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- Manufacturers may acquire exclusive rights to produce and sell goods with one or more unique features.
  - Such rights are granted by **patents**, which the federal government issues to inventors.
  - These rights continue in effect for 20 years.
- A business may purchase patent rights from others, or it may obtain patents developed by its own research and development.

# Patents

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- The initial cost of a purchased patent, including any legal fees, is debited to an asset account.
  - This cost is written off, or amortized over the years of the patent's expected useful life.
    - The expected useful life of a patent may be less than its legal life. For example, a patent may become worthless due to changing technology or consumer tastes.

# Patents

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- Patent amortization is normally computed using the straight-line method.
- The amortization is recorded by debiting an amortization expense account and crediting the patents account. A separate contra asset account is usually *not* used for intangible assets.
- For companies that develop their own patents through research and development, any *research and development* costs are usually recorded as current operating expenses in the period in which they are incurred.



# Copyrights and Trademarks

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- The exclusive right to publish and sell a literary, artistic, or musical composition is granted by a **copyright**.
  - Copyrights are issued by the federal government and extend for 70 years beyond the author's death.
- The costs of a copyright include all costs of creating the work plus any other costs of obtaining the copyright.
  - A copyright that is purchased is recorded at the price paid for it.
  - Copyrights are amortized over their estimated useful lives.

# Copyrights and Trademarks

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- A **trademark** is a name, term, or symbol used to identify a business and its products.
  - Most businesses identify their trademarks with ® in their advertisements and on their products.
- Under federal law, businesses can protect their trademarks by registering them for 10 years and renewing the registration for 10-year periods.

# Copyrights and Trademarks

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- Like a copyright, the legal costs of registering a trademark are recorded as an asset.
- If a trademark is purchased from another business, its cost is recorded as an asset.
  - In such cases, the cost of the trademark is considered to have an indefinite useful life. Thus, trademarks are not amortized but rather reviewed periodically for impaired value.
    - When a trademark is impaired, the trademark should be written down and a loss recognized.

# Goodwill

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- **Goodwill** refers to an intangible asset of a business that is created from such favorable factors as location, product quality, reputation, and managerial skill.
- Generally accepted accounting principles (GAAP) allow goodwill to be recorded only if it is objectively determined by a transaction.
  - An example of such a transaction is the purchase of a business at a price in excess of the fair value of its net assets (assets – liabilities). The excess is recorded as goodwill and reported as an intangible asset.

# Goodwill

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- Unlike patents and copyrights, goodwill is not amortized.
- However, a loss should be recorded if the future prospects of the purchased firm become impaired. This loss would normally be disclosed in the Other Expense section of the income statement.

# Financial Reporting for Long-Term Assets: Fixed and Intangible (slide 1 of 3)

- On the income statement, depreciation and amortization expense should be reported separately or disclosed in a note.
- A description of the methods used in computing depreciation should also be reported.

# Financial Reporting for Long-Term Assets: Fixed and Intangible (slide 2 of 3)

- On the balance sheet, each class of fixed assets should be disclosed on the face of the statement or in the notes.
- The related accumulated depreciation should also be disclosed, either by class or in total.
  - The fixed assets may be shown at their *book value* (cost less accumulated depreciation).
  - If there are many classes of fixed assets, a single amount may be presented on the balance sheet, supported by a note with a separate listing.
  - Fixed assets may be reported under the more descriptive caption of property, plant, and equipment.

# Financial Reporting for Long-Term Assets: Fixed and Intangible (slide 3 of 3)

- Intangible assets are usually reported on the balance sheet in a separate section following fixed assets.
- The balance of each class of intangible assets should be disclosed net of any amortization.



# Financial Analysis and Interpretation: Fixed Asset Turnover Ratio

- The **fixed asset turnover ratio** measures the number of sales dollars earned per dollar of fixed assets.
- The fixed asset turnover ratio is computed as follows:

$$\text{Fixed Asset Turnover Ratio} = \frac{\text{Sales}}{\text{Average Book Value of Fixed Assets}}$$

- The higher the ratio, the more efficiently a company is using its fixed assets in generating sales.

# Appendix: Exchanging Similar Fixed Assets

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- Old equipment is often traded for new equipment having a similar use.
  - In such cases, the seller allows the buyer an amount for the old equipment traded in.
    - This amount, called the **trade-in allowance**, may be either greater or less than the book value of the old equipment.
  - The remaining balance—the amount owed—is either paid in cash or recorded as a liability.
    - It is normally called **boot**, which is its tax name.

# Appendix: Exchanging Similar Fixed Assets

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- Accounting for the exchange of similar assets depends on whether the transaction has *commercial substance*.
  - An exchange has commercial substance if future cash flows change as a result of the exchange.
- If an exchange of similar assets has commercial substance, a gain or loss is recognized.
  - In such cases, the exchange is accounted for similar to that of a sale of a fixed asset.