# ACC200: Principles of Financial Accounting Notes

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## Contents

**1 Accounting and the Business Environment** **4**
1.1 Why is Accounting Important? . . . . . 4
1.2 What are the Organizations and Rules that Govern Accounting . 4
1.2.1 Generally Accepted Accounting Principles . . . . . 4
1.3 What is the Accounting Equation? . . . . . 5
1.4 How do You Analyze a Transaction? . . . . . 6
1.4.1 How do You Prepare Financial Statements? . . . . . 7
1.5 How do You Use Financial Statements to Evaluate Business Performance? . . . . . 7

**2 Recording Business Transactions** **8**
2.1 What is an Account? . . . . . 8
2.1.1 Assets . . . . . 8
2.1.2 Liabilities . . . . . 8
2.1.3 Equity . . . . . 9
2.1.4 Chart of Accounts . . . . . 9
2.1.5 Ledger . . . . . 9
2.2 What is Double-Entry Accounting? . . . . . 9
2.3 How Do You Record Transactions? . . . . . 10
2.4 What is the Unadjusted Trial Balance? . . . . . 11
2.4.1 Correcting Trial Balance Errors . . . . . 11
2.5 What is the Accounting Cycle? . . . . . 11
2.6 How do You Use the Debt Ratio to Evaluate Business Performance? 11

**3 The Adjusting Process** **12**
3.1 Cash Basis Accounting vs. Accrual Basis Accounting . . . . . 12
3.2 What Concepts and Principles Apply to Accrual Basis Accounting? 12
3.2.1 The Time Period Concept . . . . . 12
3.2.2 The Revenue Recognition Principle . . . . . 12
3.2.3 The Matching Principle . . . . . 12

3.3 What are the Adjusting Entries for Deferrals? . . . . . 13
3.3.1 Deferred Expenses . . . . . 13
3.3.2 Depreciation . . . . . 13
3.3.3 Deferred Revenues . . . . . 14
3.4 What are the Adjusting Entries for Accruals? . . . . . 14
3.4.1 Accrued Expenses . . . . . 14
3.4.2 Accrued Revenues . . . . . 14
3.5 What is the Purpose of the Adjusted Trial Balance, and how do We Prepare It? . . . . . 15
3.6 Next Steps in the Accounting Cycle . . . . . 15

**4 Completing the Accounting Cycle** **15**
4.1 How do We Prepare Financial Statements? (Classified Balance Sheets) . . . . . 15
4.1.1 Assets . . . . . 15
4.1.2 Liabilities . . . . . 16
4.2 What is the Closing Process, and how do we Close the Accounts? 16
4.3 The Current Ratio . . . . . 17

**5 Merchandising Operations** **18**
5.1 What are Merchandising Operations? . . . . . 18
5.1.1 The Operating Cycle of a Merchandising Business . . . . 18
5.1.2 Merchandise Inventory Systems . . . . . 18
5.2 How are Purchases Recorded in a Perpetual Inventory System . . 19
5.3 How are Sales Recorded in a Perpetual Inventory System . . . . 20
5.4 What are the Adjusting and Closing Entries for a Merchandiser . 20
5.4.1 Adjusting Merchandise Inventory for Shrinkage . . . . . 20
5.5 How are a Merchandiser's Financial Statements Prepared . . . . 21
5.5.1 Net Sales Revenue and Gross Profit . . . . . 21
5.5.2 Multi-Step Income Statement . . . . . 21
5.6 Gross Profit Percentage . . . . . 22

**6 Merchandise Inventory** **22**
6.1 Accounting Principles Relating to Merchandise Inventory . . . . 22
6.2 How are Merchandise Inventory Costs Determined . . . . . 23
6.2.1 Specific Identification Method . . . . . 23
6.2.2 First-In, First-Out (FIFO) Method . . . . . 23
6.2.3 Last-In, First-Out (LIFO) Method . . . . . 23
6.2.4 Weighted-Average Method . . . . . 24
6.3 How are Financial Statements Affected by Using Different Inventory Costing Methods . . . . . 24
6.4 Lower-of-Cost-or-Market Rule . . . . . 24
6.5 Inventory Turnover and Days' Sales in Inventory . . . . . 25

**7 Receivables** **25**
7.1 Common Types of Receivables . . . . . 25
7.2 Direct Write-Off Method . . . . . 26
7.3 Allowance Method . . . . . 26
7.4 Determining Amount of Bad Debt Expense using Allowance Method 27
7.4.1 Percent-of-Sales Method . . . . . 27
7.4.2 Percent-of-Receivables Method . . . . . 27
7.4.3 Aging-of-Receivables Method . . . . . 28
7.5 Accounting for Notes Receivable . . . . . 28
7.6 Acid-test Ratio, Accounts Receivable Turnover Ration, Days' Sales in Receivables . . . . . 29

**8 Plant Assets, Natural Resources, and Intangibles** **29**
8.1 Measuring Cost of Property, Plant, and Equipment . . . . . 29
8.1.1 Land and Land Improvements . . . . . 30
8.1.2 Lump-Sum Purchase . . . . . 30
8.1.3 Capital and Revenue Expenditures . . . . . 31
8.2 Calculating Depreciation . . . . . 31
8.2.1 Factors in Computing Depreciation . . . . . 31
8.2.2 Depreciation Methods . . . . . 32
8.3 Recording disposals of Plant Assets . . . . . 33
8.4 Accounting for Natural Resources . . . . . 34
8.5 Accounting for Intangible Assets . . . . . 34
8.5.1 Specific Intangibles . . . . . 34

# 1 Accounting and the Business Environment

## 1.1 Why is Accounting Important?

***Accounting*** is the information system that measures business activities, processes the information into reports, and communicates the results to decision makers. We can divide accounting into two major fields: financial accounting and managerial accounting. ***Financial accounting*** provides information for external decision makers, such as outside investors, lenders, customers, and the federal government. ***Managerial accounting*** focuses on information for internal decision makers, such as the company's managers and employees.

***Certified Public Accountants*** (CPAs) are licensed professional accountants who serve the general public. CPAs work for public accounting firms, businesses, government entities, or educational institutions. ***Certified Management Accountants*** (CMAs) are certified professionals who specialize in accounting and financial management knolwedge.

## 1.2 What are the Organizations and Rules that Govern Accounting

In the United States, the ***Financial Accounting Standards Board (FASB)***, a privately funded organization, oversees the creation and governance of accounting standards. The FASB works with governmental regulatory agencies like the ***Securities and Exchange Commission (SEC)***. The SEC is the U.S. governmental agency that oversees the U.S. financial markets. It also oversees those organizations that set standards (like the FASB).

### 1.2.1 Generally Accepted Accounting Principles

The guidelines for accounting information are called ***Generally Accepted Accounting Principles (GAAP)***. GAAP is the main U.S. accounting rule book. The primary objective of financial reporting is to provide information useful for making investment and lending decisions. To be useful, information must be relevant and have ***faithful representation***. Information that is faithfully representative is complete, neutral, and free from material error. These basic accounting assumptions and principles are part of the foundation of for the financial reports that companies present.

- The most basic concept in accounting is that of the ***economic entity assumption***. An economic entity is an orgnization that stands apart as a separate economic unit. An entity refers to one business, separate from its owners. A business can be organized as a...
  - ***Sole Proprietorship***: A business with a single owners

  - ***Partnership***: A business with two or more owners and not organized as a corporation
  - ***Corporation***: A business organized under state law that is a separate legal entity
  - ***Limited-Liability Company (LLC)***: A company in which each member is only liable for his or her own actions.

- The ***cost principle*** states taht acquired assets and services should be recorded at their actual cost and not fair value. The cost principle means we record a transaction at the amount shown on the receipt—the actual amout paid. Even though the purchaser may believe the price is a bargain, the item is recorded at the price actually paid and not at the *expected* cost. The cost principle also holds that the accounting records should continue reporting the historical cost of an asset over its useful life instead of adjusting the cost annually to fair value. ***Fair value*** represents the price that would be received if the asset was sold.

- The ***Going concern assumption*** assumes that the entitiy will remain in operation for the foreseeable future. Under the going concern assumption, accountants assume that the business will remain in operation long enough to use existing resources for their intended purpose.

- Accountants assume that the dollar's purchasing power is stable. This is the basis of the ***monetary unit assumption***, which requires that the items on the financial statements be measured in terms of monetary unit.

To handle conflicts of interest and to provide reliable information, the SEC requires publicly held companies to have their financial statemetns audited by independent accountants. An ***audit*** is an examination of a company's financial statements and reords. The independent accountants then issue an opinion that staes whether the financial statements give a fair picture of the company's financial situation.

The ***Sarbanes-Oxley Act (SOX)*** requires management to review internal control and take responsibility for the accuracy and completeness of their financial reports. In addition, SOX made it a criminal offense to falsify financial statements. SOX also created a new watchdog agency, the ***Public Company Accounting Oversight Board (PCAOB)***, to monitor the work of independent accountants who audit public companies.

## 1.3 What is the Accounting Equation?

The basic tool of accounting is the ***accounting equation***. It measures the resources of a business (what the business owns or has control of) and the claims of those resources (what the business owes to creditors and to the owners). The

accounting equation is made up of three parts—assets, liabilities, and equity—and shows how these three parts are releated. Assets appear on the left side of the equiation, and the liabilities and equity appear on the right side.

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

An ***asset*** is an economic resource that is expected to benefit the business in the future. Assets are something of value that a business owns or has control of (e.g. cash, merchandise, inventory). Claims to those assets come from two sources: liabilities and equity. ***Liabilities*** are debts that are owed to creditors. Liabilities are something the business owes and represent the creditors' claims on the business' assets. The owners of a corporation are referred to as stockholders. The owners' claims to the assets of the business are called ***equity***. Equity represents the amount of assets that are left over after the company has paid its liabilities.

Equity consists of two main components: contributed capital and retained earnings. Owner contributions to a corporation are referred to as ***contributed capital***. A sotckholder can contribute cash or other assets to the business and receive capital. The basic element of contributed capital is stock, which the corporation issues to the stockholders as evidence of their ownership. ***Common stock*** represents the basic ownership of every corporation.

***Retained earnings*** is the equity earned by profitable operations that is not distributed to stockholders. There are three types of events that affect retained earnings: dividends, revenues, and expenses. A profitable corporation may make distributes to stockholders in the form of ***dividends***. Dividends can be paid in the form of cash, stock, or other property.

***Revenues*** are earnings that result from delivering goods or services to customers. ***Expenses*** are the costs of selling goods or services. Expenses are the opposite of revenues and, therefore, decrease retained earnings and stockholders' equity. The difference between revenue and expenses is net income or net loss. ***Net income*** occurs when total revenues are greater than total expenses. A net loss is the opposite. A ***net loss*** occurs when total expenses are greater than total revenues.

## 1.4 How do You Analyze a Transaction?

Accounting is based on actual transactions. A ***transaction*** is any event that affects the financial position of the business *and* can be measured with faithful representation. Transactions affect what the company has (assets) , owes (liabilities), and/or its net worth (equity). An accountant only records events that have dollar amounts that can be measured reliably, such as the purchase of a building, a sale of merchandise, and the payment of rent.

### 1.4.1 How do You Prepare Financial Statements?

***Financial statements*** are business documents that are used to communicate information needed to make business decisions. These statements are prepared in the order described below.

- An ***income statement*** provides information about profitability for a particular period for the company. Revenues - Expenses = Net Income or Net Loss
- A ***statement of retained earnings*** informs users about how much of the earnings were kept and reinvested in the company. Beginning Retained Earnings + Net Income - Dividends for the period = Ending Retained Earnings
- A ***balance sheet*** provides valuable information to financial statement users about economic resources the company has (assets) as well as debts the company owes (liabilities), and allows decision makers to determine their opinion about the financial position of the company. Assets = Liabilities + Stockholders' Equity
- A ***statement of cash flows*** reports on a business' cash receipts and cash payments for a period of time.

The income statement presents a summary of a business entity's reventues and expenses for a period of time, such as a month, quarter, or year. The statement of retained earnings shows the changest in retained earnings for a business entity during a time period, such as a month, quarter, or year. The balance sheet lists a business entity's assets, liabilities, and stockholders' equity as of a specific date, usually the end of a month, quarter, or year. THe balance sheet is a snapshot of the entity. An investor or creditor can quickly assess the overall health of a business by viewing the balance sheet. The statement of cash flows reports the cash coming in and the cash going out during a period. If a transaction does not involve cash, such as the purchase of supplies on account, it will not be reported on the statement of cash flows.

## 1.5 How do You Use Financial Statements to Evaluate Business Performance?

***Return on assets (ROA)*** measures how profitably a company uses its assets. Return on assets is calculated by dividing the net income by average total assets. Average total assets is calculated by adding the beginning and ending total assets for the time period and then dividing by two.

Beginning total assets + Ending total assets / 2

# 2 Recording Business Transactions

## 2.1 What is an Account?

The accoutning equation is made up of three parts or categories: assets, liabilities, and equity. Each category contains accounts. An ***account*** ist he detailed record of all increases and decreases that have occurrerd in an individual asset, liability, or equity during a specified period.

### 2.1.1 Assets

***Assets*** are economic resources that are expected to benefit the business in the future—something the busienss owns or has control of that has value. Below is a list of asset accounts that most businesses use...

- **Cash**: a business' money. Includes bank balances, bills, coins, and checks.
- **Accounts Receivable**: A customer's promise to pay in the future for services or goods sold. Often described as *on account*.
- **Notes Receivable**: A *written* promise that a customer will pay a fixed amount of money (principlal) and *interest* by a certain date in the future. Usually more formal than an accounts receivable.
- **Prepaid Expense**: A payment of an expense in advance. It is considered an asset because the prepayment provides a benefit in the future. Examples of prepaid expenses are prepaid rent, prepaid insurance, and supplies.
- **Land**: the cost of land a business uses in operations.
- **Building**: The cost of an office building, a store, or a warehouse.
- **Equipment, furniture, and fixtures**: the cost of equipment, furniture, and fixtures. A business has a separate asset account for each type.

### 2.1.2 Liabilities

A ***liability*** is a debt—that is, something the business owes. A business generally has fewer liability accounts than asset accounts. Below is a list of common liability accounts...

- **Accounts Payable**: A promise made by the business to pay a debt in the future. Arises from a credit purchase.
- **Notes Payable**: A *written* promise made by the business to pay a debte, usually involving *interest*, in the future.
- **Accrued Liability**: An amount owed by not paid. A specific type of payable such as taxes payable, rent payable, and salaries payable.

- **Unearned Revenue**: Occurs when a compnay receives cash from a customer but has not provided the product or service. The promise to provide services or deliver goods in the future.

### 2.1.3 Equity

The stockholders' claim to the assets of the business is called *equity* or *stockholders' equity*. Stockholders' equity is made up of contributed capital and earned capital. Contributed capiutal consists of common stock. Earned capital results from the earnings of delivering goods or services (revenues), the cost of selling goods or services (expenses), and the distributions of those earnings (dividends). Below are the separate accounts for each element of equity...

- **Common Stock**: Represents the net contributions of the stockholders in the business. Increases equity.
- **Dividends**: Distributions of cash or other assets to the stockholders. Decreases equity.
- **Revenues**: Earnings that result from delivering goods or services to customers. Increases equity. Examples include service revenue and rent revenue.
- **Expenses**: the cost of selling goods or services. Decreases equity. Examples include rent expense, salaries expense, and utility expense.

### 2.1.4 Chart of Accounts

A ***chart of accounts*** lists all company accounts along with the account numbers. Account numbers are just shorthand versions of the account names.

### 2.1.5 Ledger

A ***ledger*** is a collection of all the accounts, the changes in those accounts, and their balances. A chart of accounts a ledger are similar in that they both list the account names and account numbers of the business. A ledger, though, provides more detail. It includes the increases and decreases of each account for a specific period and the balance of each account as a specific point in time.

## 2.2 What is Double-Entry Accounting?

Accounting uses the double-entry system to record the dual effects of each transaction.

A shortened form of an account in the ledger is called the ***T-account*** because it takes the form of the capital letter T. The vertical line divides the account into its left and right sides, with the account name at the top. The left side of

the T-account is called the ***debit*** side, and the right side is called the ***credit*** side.

Assets are always increased with a debit and decreased with a credit. Liabilities and equity are always increased with a credit and decreased with a debit.

All accounts have a normal balance. An account's ***normal balance*** appears on the side—either debit or credit—where we record an *increase* in the accounts balance. An account with a normal debit balance may occasionally have a credit balance. That indicates a negative amount in the account.

## 2.3 How Do You Record Transactions?

Accountants use source document to provide the evidence and data for recording transactions. Some source documents that businesses use include the following:

- **Purchase invoices**. Documents that tell the business how much and when to pay a vendor for purchases on account, such as supplies.
- **Bank checks**. Documents that illustrate the amount and date of cash payments.
- **Sales invoices**. Documents provided to clients when a business sells services or goods; tells the business how much revenue to record.

After accountants review the source documents, they are then ready to record the transactions. Transactions are first recorded in a ***journal***, which is the record of transactions in date order. Journalizing a transaction records the data only in the journal—not in the ledger. The data must also be transferred to the ledger. THe process of transferring data from the journal to the ledger is called ***posting***. We post from the journal to the ledger. Debits in the journal are posted as debits in the ledger and credits as credits—no exceptions.

The journalizing and posting process has five steps:

1. Identify the accounts and the accoutn type.
2. Decide whether each account increases or decreases, then apply the rules of debits and credits.
3. Record the transaction in the journal.
4. Post the journal entry to the ledger.
5. Determine whether the accounting equation is in balance.

## 2.4 What is the Unadjusted Trial Balance?

After the transactions are recorded in the journal and then posted to the ledger, a ***trial balance*** can be prepared. The trial balance summarizes the ledger by listing all the accounts with their balances—assets first, followed by liabilities, and then equity. The trial balance provides an accuracy check by showing whether total debits equal total credits. The trial balance is also a useful summary of the accounts and tehir balances because it shows the balances on a specific date for all acccounts in a company's accounting system.

### 2.4.1 Correcting Trial Balance Errors

Balancing errors can be detected by computing the difference between total debits and total credits on teh trial balance. Then perform one or more of the following actions:

1. Search the trial balance for a missing account.
2. Divide the difference between total debits and total credits by 2.
3. Divide the out-of-balance amount by 9.

Total debits can equal total credits on the trial balance; however, there still could be errors in individual account balances because an incorrect account might have been selected in an individual journal entry.

## 2.5 What is the Accounting Cycle?

The ***accounting cycle*** is the process by which companies produce their financial statements for a specific period of time. It is the steps that companies follow throughout the time period. Some of these steps are as follows:

1. Start with the beginning account balances
2. Analyze and journalize transactions in the journal
3. Post journal entries to the accounts in the ledger
4. Prepare the unadjusted trial balance

## 2.6 How do You Use the Debt Ratio to Evaluate Business Performance?

The ***debt ratio*** shows the proportion of assets financed with debt and is calculated by dividing total liabilities by total assets. It can be used to evaluate a business' ability to pay its debts.

$$\text{Debt ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

# 3 The Adjusting Process

## 3.1 Cash Basis Accounting vs. Accrual Basis Accounting

***Cash basis accounting*** records only transactions with cash: cash receipts and cash payments. When cash is received, revenues are recorded. When cash is paid, expenses are recorded. As a result, revenues are recorded only when cash is received and expenses are recorded only when cash is paid. The cash basis of accounting is not allowed under GAAP.

***Accrual basis accounting*** follows GAAP and records the effect of each transaction as it occurs—that is, revenues are recorded when earned and expenses are recorded when incurred. Revenues are considered to be earned when the services or goods are provided to the customers.

## 3.2 What Concepts and Principles Apply to Accrual Basis Accounting?

### 3.2.1 The Time Period Concept

Because businesses need periodic reports on their affairs, the ***time period concept*** assumes that a business' activities can be sliced into small time segments and that financial statements can be prepared for specific period, such as month, quarter, or year. The basic acounting period is one year, and most businesses prepare annual financial statements. The 12-month accounting period used for the annual financial statements is called a ***fiscal year***.

### 3.2.2 The Revenue Recognition Principle

The ***revenue recognition principle*** tells accountants when to record revenue and requires companies to follow a five-step process:

1. Identify the contract with the customer.
2. Identify performance obligations in the contract.
3. Determine the transaction price.
4. Allocate the transaction price to the performance obligations in the contract.
5. Recognize revenue when (or as) the entity satisfies each performance obligation.

### 3.2.3 The Matching Principle

The ***matching principle*** guides accounting for expenses and ensures the following:

- All expenses are recorded when they are incurred during the period.
- Expenses are matched against the revenues of the period.

To match expenses against revenues means to subtract expenses incurred during one month from revenues earned during that same month. The goal is to compute an accurate net income or net loss for the time period.

## 3.3 What are the Adjusting Entries for Deferrals?

An ***adjusting entry*** is completed at the end of the accounting period and records revenues to the period in whcih they are earned and expenses to the period in which they occur. Adjusting entries also update the asset and liability accounts. Adjustments are needed to properly measure several items such as:

1. Net income (loss) on the income statement
2. Assets and liabilities on the balance sheet

There are two basic categories of adjusting entries: *deferrals* and *accurals*. In a deferral adjustment, the cash payment occurs before an expense is incurred or the cash receipt occurs before the revenue is earned. A ***deferral*** delays (or defers) the recognition of revenue or expense to a date after the cash is received or paid. Accrual adjustments are the opposite. An ***accrual*** records an expense before the cash is paid, or it records the revenue before the cash is received.

The two basic categories of adjusting entries can be further separated into four types:

1. Deferred expense (deferral)
2. Deferred revenues (deferral)
3. Accured expenses (accrual)
4. Accrued revenues (accrual)

### 3.3.1 Deferred Expenses

***Deferred expenses***, also called *prepaid expenses*, are advance payments of future expenses. They are deferrals because the expense is not recognized at the time of payment but deferred until they are used up. Such payments are considered assets rather than expenses until they are used up.

### 3.3.2 Depreciation

***Property, plant, and equipment*** are long-lived, tangible assets used in the operation of a business. As a business uses these assets, their value and usefulness decline. The decline in usefulness of a plan asset is an expesne, and

accountants ystematically spread the asset's cost over its useful life. The allocation of a plant's asset's cost over its useful life is called ***depreciation***.

The expected value of a depreviable asset at the end of its useful life is called the ***residual value***. The ***straight-line method*** for computing depreciation allocates an equal amount of depreciation each year and is calculated as

$$\text{straight-line depreciation} = (\text{cost} - \text{residual value})/\text{useful life}$$

The ***accumulated depreciation*** account is the sum of all depreciation expense recorded for the depreciable asset to date. Accumulated depreciation is a contra asset, which means that it is an asset account with a normal credit balance. Contra means opposite. A ***contra account*** has two main characteristics:

- a contra account is paired with and is listed immediately after its related account in the chart of accounts and associated financial statement
- A contra account's normal balance (debit or credit) is the opposite of the normal balance of the related account.

The net amount (cost minus accumulated depreciation) of a plant asset is called its ***book value***. The book value represents the cost invested in the asset that the business has not yet expensed.

### 3.3.3 Deferred Revenues

Deferred revenues occur when the company receives cash before it does the work or delivers a product to earn that cash. The company owes a product or a service to the customer, or it owes the customer his or her money back. Unearned revenue is a liability and is also called deferred revenue.

## 3.4 What are the Adjusting Entries for Accruals?

### 3.4.1 Accrued Expenses

Businesses often incur expenses before paying for them. The term ***accrued expense*** refers to an expense of this type. An accrued expense hasn't been paid for yet. An accrued expense always creates an ***accrued liability***. The formular for computing interest is as follows

$$\text{Amount of interest} = \text{Principal} \times \text{Interest rate} \times \text{Time}$$

In the formula, time (period) represents the portion of a year that interest has accrued on the note.

### 3.4.2 Accrued Revenues

Businesses can earn revenue before they receive the cash from their customers. This creates an ***accrued revenue***, which is a revenue that has been earned but for which the cash has not yet been collected.

### 3.5 What is the Purpose of the Adjusted Trial Balance, and how do We Prepare It?

After the adjustments have been journalized and posted, the account balances are updated, and an ***adjusted trial balance*** can be prepared by listing all the accounts with their adjusted balances.

### 3.6 Next Steps in the Accounting Cycle

In this chapter, we discussed the next two steps of the accounting cycle.

Step 5 **Journalize and post adjusting entries**. At the end of the accounting period, companies journalize and post adjusting entries to record revenues to the period in which they are earned and the expenses to the period in which they occur.

Step 6 **Prepare the adjusted trial balance**. An adjusted trial balance is prepared to summarize the account balances as reported in the ledger.

## 4 Completing the Accounting Cycle

### 4.1 How do We Prepare Financial Statements? (Classified Balance Sheets)

Financial statements are prepared from the adjusted trial balance. Financial statements should always be prepared in the following order: income statement, statement of retained earning, balance sheet. We know that net income from the income statement increases retained earnings on the statement of retained earnings; a net loss decreases retained earnings. Then, the ending retained earnings from the statement of retained earnings goes to the balance sheet and makes total liabilities plus total stockholders' equity equal total assets.

In a ***classified balance sheet***, each asset and liability are placed into a specific category or classification. Assets are show in order of liquidity and liabilities are classified by the order in which they must be paid, either ***current*** (within one year) or ***long-term*** (more than one year). ***Liquidity*** measures how quickly and easily an account can be converted to cash (because cash is the most liquid asset).

#### 4.1.1 Assets

The balance sheet lists assets in the order of liquidity. A classified balance sheet reports two asset categories: *current assets* and *long-term assets*. ***Current assets*** will be converted to cash, sold, or used up during the next 12 months or within the business' operating cycle if the cycle is longer than a year. The ***operating cycle*** is the time span when:

1. Cash is used to acquire goods and services.
2. These goods and services are sold to customers.
3. The business collects cash from customers.

For most businesses, the operating cycle is a few months. Cash, Accounts receivable, Supplies, and Prepaid Expenses are examples of current assets.

***Long-term assets*** are all the assets that will not be converted to cash or used up within the business' operating cycle or one year, whichever is greater. Long-term assets are typically made up of three categories: long-term investments; propery, plant, and equipment; and intangible assets.

Notes receivable and other investments that are held long-term are considered ***long-term investments*** and include investments in bonds or stocks which the company intends to hold for longer than one year. Another category of long-term assets is ***property, plant, and equipment***. Land, buildings, furniture, and equipment used in operations are plan assets. Assets with no physical form are ***intangible assets***. Examples of intangible assets include patents, copyrights, and trademarks.

### 4.1.2 Liabilities

The balance sheet lists liabilities in the order in which they must be paid. The two liability categories reported on the balance sheeet are *current liabilities* and *long-term liabilities*.

***Current liabilities*** must be paid with cash, or with goods and services, within one year or within the entity's operating cycle if the cycle is longer than a year. Accounts payable, notes payable due within one year, salaries payable, interest payable, and unearned revenue are all current liabilities. Any portion of long-term liability that is due within the next year is also reported as a current liability.

***Long-term liabilities*** are all liabilities that do not need to be paid within one year or within the entity's operating cycle, whichever is longer.

## 4.2 What is the Closing Process, and how do we Close the Accounts?

The ***closing process*** consists of journalizing and posting the closing entries in order to get the accounts ready for the next period. The closing process zeroes out all revenue accounts and all expense accounts in order to measure each period's net income separately from all other periods. It also updates the retained earnings account balance for net income or loss during the period and

any dividends paid to the stockholders. The closing process prepares the accounts for the next time period by setting the balances of revenues, expenses, and dividends to zero.

Revenues and expenses are called ***temporary accounts***. The dividends account is also temporary and must be closed at the end of the period because it measures the payments to stockholders for only that one period. The balances of all temporary accounts do not carry forward into the next time period. Instead, the business starts the new time period with a zero beginning balance in termporary accounts.

By contrast, the ***permanent accounts***—the assets, liabilities, common stock, and retained earnings—are not closed at the end of the period. Permanent account balances are carried forward into the next time period. All accounts on the balance sheet are permanent accounts.

***Closing entries*** transfer the revenues, expenses, and dividends balances to the retained earnings account to prepare the company's books for the next period. As an intermediate step, the revenues and the expenses may be transferred first to an account titled Income Summary. The ***income summary*** account summarizes the net income (or net loss) for the period by collecting the sum of all the expenses (a debit) and the sum of all the revenues (a credit).
After closing entries are recorde and posted, the accounting cycle ends with a ***post-closing trial balance***. Only assets, liabilities, common stock, and retained earnings accounts appear on the post-closing trial balance.

## 4.3 The Current Ratio

The ***current ratio*** measures a company's ability to pay its current liabilities with its current assets. This ratio is computed as follows:

$$\text{Current ratio} = \text{Total current asset}/\text{Total current liabilities}$$

A company prefers to have a high current ratio because that means it has plenty of current assets to pay its current liabilities. A current ratio that has increased from the prior period indicates improvement in a company's ability to pays its current debts. A current ratio that has decreased from the prior period signals deterioration in the company's ability to pay its current liabilities.

**Remark** A strong current ratio is 1.50, which indicates that the business has \$1.50 in current assets for every \$1.00 in liabiliites. A current ratio of 1.00 is considered low and somewhat risky.

# 5 Merchandising Operations

## 5.1 What are Merchandising Operations?

A ***merchandiser*** is a business that sells merchandies, or goods, to customers. The merchandise that this type of business sells is called ***merchandise inventory***. Merchandisers are often identified as either wholesalers or retailers. A ***wholesaler*** is a merchandiser who buys goods from a manufacturer and then sells them to retailers. A ***retailer*** buys merchandise either from a manufacturer or w whilesaler and then sells those goods to customers.

### 5.1.1 The Operating Cycle of a Merchandising Business

1. It begins when the company purchases inventory from an individual or business, called a vendor
2. The company then sells the inventory to a customer
3. Finally, the company collects cash from customers

Because the operating cycle of a merchandiser is different than that of a service company, the financial statements differ. On the income statement, a merchandising company reports revenues using an account called *Sales Revenue* rather than the account *Service Revenue* used by service companies. A merchandiser also reports the cost of merchandise inventory that has been sold to customers, or ***Cost of Goods Sold (COGS)***. Because COGS is usually a merchandiser's main expense, an intermediary calculation, gross profit, is determined before calculating net income. ***Gross profit*** is calculated as net sales revenue minus cost of goods sold and represents the markup on the merchandise inventroy. After calculating gross profit, operating expenses are then deducted to determine net income. ***Operating expensses*** are expenses, other than COGS, that occur in the entity's major ongoing operations. On the balance sheet, a merchandiser includes Merchandise Inventory in the current assets section representing the value of inventory that the business has on hand to sell to customers.

### 5.1.2 Merchandise Inventory Systems

There are two main types of inventory accounting systems that are used: periodic inventory system and perpetual inventory system.

The ***periodic inventory system*** requires businesses to obtain a physical count of inventory to determine the quantities on hand. The system is normally used for relatively inexpensive goods, such as in small, local stores without optical scanning cash registers.

The ***perpetual inventory system*** keeps a running computerized record of merchandise inventory—that is, the number of inventory units and the dollar amounts associated with the inventory are perpetually (constantly) updated.

## 5.2 How are Purchases Recorded in a Perpetual Inventory System

The ***invoice*** is the seller's request for payment from the buyer. An invoice is also called a *bill*.

Sellers allow purchasers to return merchandise that is defective, damaged, or otherwise unsuitable. This is called a ***purhcase return*** from the purchaser's perspective. Alternatively, the seller may deduct an allowance from the amount the buyer owes. ***Purchase allowances*** are granted to the purchaser as an incentive to keep goods that are not *as ordered*. Together, purchase returns and allowances decrease the buyer's cost of the merchandise inventory.

Many businesses offer purchasers a discount for early payment called a ***purchase discount***. ***Credit terms*** express the discount, the discount period, and the final due date. A purchase discount is applied on the amount owed. If a business returns merchandise inventory or receives a purhcase allowance before payment is made, the purchase discount will be calculated net of the return or allowance.

Either the seller or the buyer must pay the transportation cost of shipping merchandise inventory. The purchase agreement specifies FOB (free on board) terms to determine when the title to the goods transfers to the purchaser and who pays the freight.

- ***FOB shipping point*** means the buyer takes ownership (title) to the goods when the goods leave the seller's place of business (shipping point). In most cases, the buyer also pays the freight.
- ***FOB destination*** means the buyer takes ownership (title) to the goods at the delivery destination point. In most cases, the seller also pays the freight.

When merchansiders are required to pay for shipping costs, those costs are classified as either freight in or freight out as follows:

- ***Freight in*** is the transportation cost to ship goods to the purchaser's warehouse; thus, it is freight on purchased goods
- ***Freight out*** is the transportation cost to ship goods out of the seller's warehouse and to the customer; thus, it is freight on goods sold to a customer.

The net cost of merchandise inventory purchase includes the purhcase cost of inventory, less purchase returns and allowances, less purchase discount, plus freight in.

## 5.3 How are Sales Recorded in a Perpetual Inventory System

The amount a business earns from selling merchandise inventory is called ***Sales Revenue*** (sales). At the time of the sale, a company must record two entries in the perpetual inventory system: one entry records rthe sales revenue and the second entry records the cost of inventory sold (or COGS). The two journal entries are:

- A journal entry for the Sales Revenue and the Cash receieved
- A journal entry for the expense (COGS) and the reduction of Merchandise Inventory

In a perpetual inventory system, the COGS account keeps a running balance throughout the period of the cost of merchandise inventory sold.

**Remark** Credit card sales are recorded in the same manner as cash sales because the payment is usually received via an electronic transfer from the credit card processor within a few days.

***Sales discounts*** decrease the amount of revenue earned on sales. Under the revenue recognition standards, sales can be recorded using either the gross or net method as long as revenue is reflected accurately on the income statement.

Allowances reduce the future cash collected from the customer. The return of goods or granting of an allowance is called ***Sales Returns and Allowances***. Similar to Sales Discounts, the Sales Returns and Allowances account is a contra account to Sales Revenue and has a normal debit balance. The return of goods is called a ***Sales Return***. Sales returns reduce the future cash collected from the customer or require a refund be made to the customer.

## 5.4 What are the Adjusting and Closing Entries for a Merchandiser

A merchandiser ajusts and closes accounts in a similar manner that a service entity does. In addition, merchandisers must also adjust for inventory shrinkage.

### 5.4.1 Adjusting Merchandise Inventory for Shrinkage

The merchandise inventory account should stay current at all times in a perpetual inventory system. However, the actual amount of inventory on hand may differ from what the books show. This difference can occur because of theft and damage and is referred to as ***inventory shrinkage***. For this reason, businesses take a physical count of inventory *at least* once a year. The most common time to count inventory is at the end of the fiscal year. The business then adjusts the Merchandise Inventory account based on the physical count.

## 5.5 How are a Merchandiser's Financial Statements Prepared

The financial statements for service businesses are also used by merchandiers. However, the merchandiser's financial statements will contain the new accounts that are unique to merchandisers.

### 5.5.1 Net Sales Revenue and Gross Profit

***Net Sales Revenue*** is the first item listed on an income statement. It is calculated as Sales Revenue less Sales Returns and Allowances and Sales Discounts. Net Sales Revenue is the amount a company has earned on sales after sales returns and allowances and sales discounts have been taken out.

### 5.5.2 Multi-Step Income Statement

The ***single-step income statement*** groups all revenues together and all expenses together without calculating other subtotals. A ***multi-step income statement***, which is used by most merchandising companies, is different than a single-step income statement because it lists several important subtotals. In addition to net income, it also reports subtotals for gross profit, operating income, and income before income tax expense.

The income statement ebgins by calculating gross profit. Gross profit is the markup on the merchandise inventory and is calculated as net sales revenue minus cost of goods sold. Next, the operating expenses, those expenses other than cost of good sold that are related to the day-to-day operations of the business, are listed. Both merchandisers and service companies report operating expenses in two categories:

- ***Selling expenses*** are operating expenses related to marketing and selling the company's goods and servgices. These include sales salaries, sales commissions, advertising, depreciation on store buildings and equipment, store rent, utilities on store buildings, property taxes on store buildings, and delivery expense.
- ***Administrative expenses*** include operating expenses *not* related to marketing the company's goods and services. These include office expenses, such as the salaries of the executives and office employees; depreciation on office buildings and equipment; rent other than on stores; utilities other than on stores; and property taxes on the administrative office building.

Gross profit minus operating expenses equals ***operating income***. Operating income measures the resutls of the entity's major ongoing activities. ***Other income and expenses*** reports revenues and expenses that fall outside the business' main, day-to-day, regular operations. Corporations are required to pay

income tax; therefore, the last section of the income statement is the ***income tax expense*** section. This section reports the federal and state income taxes that are incurred by the corporation.

### 5.6 Gross Profit Percentage

The ***gross profit percentage*** measures the profitability of each sales dollar about the cost of goods sold and is computed as follows

$$\text{Gross profit percentage} = \text{Gross profit/Net sales revenue}$$

The gross profit percentage reflects a business' ability to earn a profit on its merchandise inventory. The gross profit earned on merchandise inventory must be high enough to cover the remaining expenses and to earn net income.

**Remark** A small increase in the gross profit percentage from last year to this year may signal an important rise in income. Conversely, a small decrease from last year to this year may signal trouble.

## 6 Merchandise Inventory

### 6.1 Accounting Principles Relating to Merchandise Inventory

The ***consistency principle*** states that businesses should use the same accounting methods and procedures from period to period. Consistency helps investors and creditors compare a company's financial statements from one period to the next.

The ***disclosure principle*** holds that a company should report enough information for outsiders to make knowledgeable decisions about the company. In short, the company should report information that is relevant and has faithful representation.

The ***materiality concept*** states that a company must perform strictly proper accounting *only* for significant items. Information is significant—or, in accounting terms, *material*—when it would cause someone to change a decision. The materiality concept frees accountants from having to report every last item in strict accordance with GAAP.

***Conservatism*** in accounting means exercising caution in reporting items in the financial statements. The goal of conservatism is to report realistic figures and never overstate assets or net income.

## 6.2 How are Merchandise Inventory Costs Determined

To compute ending inventory and cost of goods sold, companies must assign a unit cost to each inventory item. This is done by using one of four inventory costing methods:

1. Specific identification
2. First-in, first-out (FIFO)
3. Last-in, first-out (LIFO)
4. Weighted-average

Each ***inventory costing method*** approximates the flow of inventory costs in a business and is used to determine the amount of cost of goods sold and ending merchandise inventory.

### 6.2.1 Specific Identification Method

The ***specific identification method*** uses the specific cost of each unit of inventory to determine ending inventory and cost of goods sold. In the specific identification method, the company knows exactly which item was sold and exactly what the item cost. This costing method is best for businesses that sell unique, easily identified inventory items, such as automobiles.

### 6.2.2 First-In, First-Out (FIFO) Method

Under the ***first-in, first-out (FIFO) method***, the cost of goods sold is based on the oldest purchases—that is, the first units purhcased are assumed to be the first units sold.

When companies uses the FIFO method, the cost of goods sold is calculated based on the assumption that the units are sold in the order they were purchased—from oldest purchases to newewst purchases. Because cost of goods sold is based on the oldest purchases, ending inventory is based on the most recent purchases.

### 6.2.3 Last-In, First-Out (LIFO) Method

Under the ***last-in, first-out (LIFO) method***, the cost of goods sold is based on the most recent purchases (newewst costs)—that is, the last units purchased are assumed to be the first units sold.

When companies use the LIFO method, the cost of goods sold is calculated based on the assumption that the units are sold from teh most recent purchases. Because cost of goods sold is based on the most recent purchases, ending inventory is based on the oldest costs.

### 6.2.4 Weighted-Average Method

Under the ***weighted-average method*** the business computes a new weighted-average cost per unit after each purchase. Ending inventory and cost of goods sold are then based on teh same weighted-average cost per unit. The weighted-average cost per unit is calculated as follows

$$\text{Weighted-average cost per unit} = \frac{\text{Cost of goods available for sale}}{\text{Number of units available}}$$

## 6.3 How are Financial Statements Affected by Using Different Inventory Costing Methods

Many companies prefer high income in order to attract investors and borrow on favorable terms. **FIFO** offers this benefit in a period of rising costs.

When inventory costs are rising, LIFO results in the highest cost of goods sold and the lowest gross profit. Lower profits means lower taxable income; thus, LIFO lets companies pay the lowest income taxes when inventory costs are rising. Low tax payments conserve cash, and that is the main benefit of LIFO. The downside of LIFO is that the company reports lower net income.

The weighted-average method generates amounts that fall between the extremes of FIFO and LIFO. Therefore, comapnies that seek a *middle ground* solution use the weighted-average method for inventory.

## 6.4 Lower-of-Cost-or-Market Rule

The ***lower-of-cost-or-market (LCM) rule*** shows accounting conservatism in action and requires that merchandise inventory be reported in the financial statements at whichever is lower of the following

- The historical cost of the inventory
- The market value of the inventory

For inventories, market value generally means the current replacement cost (CRC) or the cost to replace the inventroy on hand. The CRC cannot exceed a ceiling, or top value, equal to net realizable value. The CRC cannot fall below a floor, or bottom value, of net realizable value less profit margin. If the market value of inventory is less than its historical cost, the business must adjust the inventory value. The company will write off the loss in inventory value directly to the inventory account and record the loss by debiting Cost of Goods Sold.

### 6.5 Inventory Turnover and Days' Sales in Inventory

***Inventory turnover*** measures how rapidly merchandise inventory is sold. It is computed as follows

$$\text{Inventory turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average merchandise inventory}}$$

$$\text{Average merchandise inventory} = \frac{\text{Beginning merchandise inventory} + \text{Ending merchandise inventory}}{2}$$

A high rate of turnover indicates ease in selling inventory; a low rate indicates difficuly.

The ***days' sales in inventory*** ratio measures the average number of days merchandise inventory is held by the company and is calculated as follows

$$\text{Days' sales in inventory} = \frac{\text{365 days}}{\text{Inventory turnover}}$$

Days' sales in inventory varies widely, depending on the business. A lower days' sales in inventory is preferable because it indicates that the company is able to sell its inventory quickly, thereby reducing its inventory storage and insurance costs, as well as reducing the risk of holding obsolete inventory.

## 7 Receivables

### 7.1 Common Types of Receivables

A ***receivable*** occurs when a business sells goods or services to another party on account (on credit). It is a monetary claim against a business or an individual. The receivable is the sellers' claim for the amount of the transaction. The creditor receives a receivable. The debtor takes on an obligation (payable). The three major types of receivables are accounts receivable, notes receivable, and other receivables.

***Accounts receivable*** represent the right to receive cash in the future from customers for goods sold or sevices performed. Accounts receivable are usually collected within a short period of time, such as 30 or 60 days (current asset).

***Notes payable*** usually have longer terms than accounts receivable. Notes receivable, sometimes called *promissory notes*, represent a written promise that a customer will pay a fixed amount of principal plus interest by a certain date ini the future—called the ***maturity date***. Notes receivable are usually due within 12 months or within the nromal operating cycle.

***Other receivables*** make up a miscellaneous category that includes any other type of receivable where there is a right to receive cash in the future.

## 7.2 Direct Write-Off Method

Selling on account brings both a benefit and a cost. The benefit to business is the potential for increased revenues and profits by making sales to a wider range of customers. THe cost, however, is that some customers do not pay, creating uncollectible receivables. Customers' accounts receivable are an asset. Accounts receivable that are uncollectible must be written off, which means they must be removed from the books, because the company does not expect to receive cash in the future. Instead, the company must record an expense associated with the cost of the uncollectible account. This expense is called ***bad debts expense***.

The ***direct write-off method*** of accounting for uncollectible receivables is primarily used by small, nonpublic companies. Under the direct write-off method, accounts receivable are written off and bad detbs expense is recorded when the business determines that it will never collect from a specific customer. Occasionally after a company writes off an account, the customer will decide to make payment. To account for this recovery, the company must reverse the earlier write-off.

The direct write-off method is often used only by small, nonpublic companies. This is because the direct write-off method violates the matching principle.

## 7.3 Allowance Method

Most companies use the allowance method to measure the amount of bad debts expense associated with the cost of uncollectible accounts. The ***allowance method*** is based on the matching principle; thus, the key concept is to record bad debts expense in the same period as the related sales revenue. The business does not wait to see which customers will not pay. Instead, it records a bad debts expense based on estimates developed from past experience. The offset to the Bad Debts Expense account is a contra asset account called ***Allowance for Bad Debts***. The Allowance for Bad Debts holds the estimated amount of *unknown* uncollectible acocunts. As the allowance for Bad Debts account is a contra asset, it is subtracted from the asset Accounts Receivable on the company's balance sheet.

When using the allowance method, companies estimate bad debts expense at the end of the period and then record an adjusting entry. ***Net realizable value*** is the net value the company expects to collect from its accounts receivable or Accounts receivables less Allowance for Bad Debts.

When using the allowance method, companies still write off acounts receivables that are uncollectible. However, instead of recording a debit to Bad Debts Expense, the company will record a debit to Allowance for Bad Debts. Bad Debts Expense is not debited when a company writes off an account receivable when using the allowance method because the company has already recorded the Bad

Debts Expense as an adjusting entry. The entry to write off an account under the allowance method has no effect on net income at the time of entry.

Customers will occasionally make payment on receivables that have already been written off. A business will need to reverse the write-off to the Allowance for Bad Debts account and then record the receipt of cash. In reversing the write-off, the business is reestablishing the receivable account and reversing the write-off from the Allowance for Bad Debts account.

## 7.4 Determining Amount of Bad Debt Expense using Allowance Method

When using the allowance method, companies must estimate the amount of bad debts expense at the end of the period and then record an adjusting entry. Companies use their past experience as well as consider the economy, the industry they operate in, and other variables in order to estimate the amount of uncollectibel accounts. Theere are three basic ways to estimate uncollectibles...

### 7.4.1 Percent-of-Sales Method

The ***percent-of-sales*** method computes bad debts expense as a percentage of net credit sales.

$$\text{Bad Debts Expense} = \text{Net credit sales} \times \%$$

The percent-of-receivables and aging-of-receivables methods are based on the balance of accounts receivable.

### 7.4.2 Percent-of-Receivables Method

The percent-of-receivables method, the business once again determines a percentage of uncollectible accounts based on past experience. This method is different than the percent-of-sales method because it multiplies th percentage by the ending unadjusted balance in the Accounts Receivable account instead of by net credit sales.

First, the company determines the target balance of Allowance for Bad Debts. Then, it uses the target balance to determine the amount for the bad debts expense.

1. Determine the target balance of Allowance for Bad Debts

   $$\text{Target balance} = \text{Ending balance of accounts receivable} \times \%$$

2. Determine the amount of bad debts expense by evaluating the allowance account

   $$\text{Bad debts expense} = \text{Target balance} - \text{Unadjusted credit balance of Allowance for Bad Debts}$$

If a company has a debit balance before the adjustment, the calculation for bad debts expense is a little different. instead of subtracting the unadjusted balance of the Allowance for Bad Debts from the target balance, the unadjusted balance will be added to the target balance.

### 7.4.3 Aging-of-Receivables Method

The ***aging-of-receivables method*** is similar to the percent-of-receivables method. However, in the aging method, the businesses group individual accounts according to how long the receivable has been outstanding. Then they apply a different percentage uncollectible to each aging cateogry.

1. Determine the target balance for allowance for Bad Debts by using the age of each account.
2. Determine the amount of bad debts expense by evaluating the allowance account

   Bad debts expense = Target balance−Unadjusted credit balance of Allowance for Bad Debts

## 7.5 Accounting for Notes Receivable

Notes receivable are more formal than accounts receivable. The debtor signs a promissory note as evidence of the transaction. Some terms used for notes receivable are defined as follows:

- A ***promissory note*** is a written promise to pay a specified amount of money at a particular future date, usually with interest.
- The ***maker of the note (debtor)*** is the entity that signs the note and promises to pay the required amount.
- The ***payee of the note (creditor)*** is trhe entity to whom the maker promises future payment; the payee of the note is the creditor. The creditor is the company that loans the money.
- ***Principal*** is the amount loaned by the payee and borrowed by the maker of the note.
- ***Interest*** isw the revenue to the payee for loaning money. Interest is an expense to the debtor and revenue to the creditor.
- The ***interest period*** is the period of time during which interest is computed.
- ***Interest rate*** is teh percentage rate of interest specified by the note.
- The ***maturity date*** is teh date when final payment of the note is due.
- The ***maturity value*** is the sum of the principla plus interest due at maturity.

The formula for computing the interest is as follows

$$\text{Interest} = \text{Principal} \times \text{Interest rate} \times Time$$

In the formula, time represents the portion of a year that interest has accured on the note.

If the maker of a note does not pay at maturity, the maker ***dishonors a note***. Because the note has expired, it is no longer in force, but the debtor still owes the payee. The payee can transfer the note receivable amount to Accounts Receivable.

## 7.6 Acid-test Ratio, Accounts Receivable Turnover Ration, Days' Sales in Receivables

The ***acid-test ration*** (also called the quick ratio) is ued to measure a company's ability to pay its current liabilities. The acid-test ratio is a more stringent measure than the current ratio but it is not as stringent as the cash ratio. It is calculated as the sum of (cash, cash equivalents, short-term investments, net current receivables) divided by total current liabilities.

The ***accounts receivable turnover ratio*** measures the number of times the company collects the average accounts receivable balance in a year. The higher the ratio, the faster the collections.

$$\text{Accounts receivable turnover ratio} = \frac{\text{Net credit sales}}{\text{Average net accounts receivable}}$$

***Days' sales in receivables*** (also called the collection period) indicates how many days it takes to collect the average level of accounts receivable. The number of days' sales in receivables should be close to the number of days customers are allowed to make payment when credit is extended. The shorter the collection period, the more quickly the organization can use its cash.

$$\text{Days' sales in receivables} = \frac{\text{365 Days}}{\text{Accounts receivable turnover ratio}}$$

# 8 Plant Assets, Natural Resources, and Intangibles

## 8.1 Measuring Cost of Property, Plant, and Equipment

***Property, plant, and equipment (PP&E)*** are long-lived, tangible assets used in the oeprations of a business. Examples include land, builduings, equipment, furniture, and automobiles. Often, property, plant, and equipment are

referred to as *plant assets*, *operational assets*, or *fixed assets* in financial statements.

Plant assets are unique from other assets, such as supplies, because plant assets are long term (lasting several years). This requires a business to allocate the cost of the asset over the years that the asset is expected to be used. This allocation of a plant asset's cost over its useful life is called ***depreciation*** and follows the matching principle. The matching principle ensures that all expenses are matched against the revenues of the period. Beacuse plant assets are used over several years, a business will record a portion of the cost of the asset as an expense in each of thos years. All plant assets except land are depreciated.

Plant assets are recorded at historical cost—the amount paid for the asset. This follows the **cost principle**, which states that acquired assets should be recorded at their actual cost.

### 8.1.1 Land and Land Improvements

The cost of land includes the following amounts paid by the purchasers:

- purchase price
- brokerage commission
- survey and legal fees
- delinquent property taxes
- taxes assessed to transfer the ownership fo the land
- cost of clearing the land and removing unwanted buildings

Separate plant assets (fencing, paving, and so on) are called ***land improvements***. Unlike land, land improvements are subject to depreciation. ***Capitalized*** means that an asset account was debited (increased) because the company acquired an asset.

Land and land improvements are two entirely separate assets. Recall that land is not depreciated. However, the cost of land improvements is depreciated over that asset's useful life.

### 8.1.2 Lump-Sum Purchase

A company may pay a single price for several assets as a group—a lump-sum purchase. For accounting purposes, the company must identify the cost of each asset purchased. The total cost paid is divided among the assets according to their relative fair values. This is called the ***relative-fair-value method***.

### 8.1.3 Capital and Revenue Expenditures

Accountants divide spending on plant assets after the acquisition into two categories:

- Capital expenditures
- Revenue expenditures

A ***capital expenditure*** is debited to an asset account because it increases the asset's capacity or efficiency or extends the asset's useful life. A capital expenditure is also called a *balance sheet expenditure* because the cost of the expenditure is reported on the balance sheet as an asset.

Examples of capital expenditures include the purchase price plus all the other costs to bring an asset to its intended use. An ***extraordinary repair*** is a capital expenditure because it extends the asset's capacity or useful life.

Expenses incurred to maintain the asset it working order, such as repair or maintenance expense, are *not* debited to an asset account. Examples include the costs of maintaining equipment, such as repairing the air conditioner on truck, changing the oil filter, and replacing its tires. These ordinary repairs are called ***revenue expenditures*** and are debited to an expense account, such as Repairs and Maintenance Expense. Revenue expenditures, often called *income statement expenditures*, do not increase the capacity or efficiency of an asset or extend its useful life, and are reported on the income statement as an expense in teh period incurred.

## 8.2 Calculating Depreciation

Depreciation matches the expense against the revenue generated from using the asset to measure net income. All assets, except land, wear out as tehy are used. Some assets, such as computers and software, amy become *obsolete* before they wear out. An asset is ***obsolete*** when a newer asset can perform the job much more efficiently. As a result, an asset's useful life may be shorter than its physical life.

### 8.2.1 Factors in Computing Depreciation

Depreciation of a plant asset is based on three main factors:

1. Capitalized cost
2. Estimated useful life
3. Estimated residual value

Capitalized cost is a known cost and includes all items paid for the asset to perform its intended function. The other two factors are estimates...

Estimated ***useful life*** is how long the company expects it will use the asset. Useful life may be expressed in time or usage or miles driven. A company's useful life estimate might be shorter than the actual life of the asset. Useful life is an estimate based on a company's experience and judgement. The goal is to define estimated useful life with the measure that best matches the asset's decline or use. When determining useful life, a company considers how long it will use the asset and when the asset will become obsolete.

Estimated ***residual value***, also called *salvage value* is the asset's expected value at the end of its estimated useful life. When a company decides to dispose of an asset, the comapny will sell or scrap it. The residual value is the amount the company expects to receive when the company disposes of the asset. Residual value can sometimes be zero if a company does not expect to receive anythintg when disposing of the asset. If the company plans on trading the asset in for a new asset, the residual value will be the expected trade-in value. Estimated residual value is *not* depreciated. Cost minus estimated residual value is called ***depreciable*** cost and is the amount of the capitalized cost that will be depreciated

$$\text{Depreciable cost} = \text{Cost} - \text{Estimated residual cost}$$

### 8.2.2 Depreciation Methods

The three most common methods for calculating depreciatin of planet assets are:

1. Straight-line method
2. Units-of-production method
3. Double-declining-balance method

These methods work differently in *how* they derive the yearly depreciation amount, but they all result in the same total depreciation over the total life of the asset.

The ***straight-line method*** allocates an equal amount of depreciation each year and is calculated as follows:

$$\text{Straight-line depreciation} = (\text{Cost} - \text{Residual value})/\text{Useful life}$$

Depreciation expense is reported on the income statement. Accumulated dpreciation is a contra asset that is reported on the balance sheet. The ***book value*** of the plant asset, cost minus accumulated depreciation, is reporetd on the balance sheet.

The ***units-of-production method*** allocates a varying amount of depreciation each year based on an asset's usage. Units-of-production depreciates by units rather than by years. Units-of-production depreciation is calculated as follows:

$$\text{Depreciation per unit} = (\text{Cost} - \text{Residual value})/\text{Useful life in units}$$

$$\text{Units-of-production depreciation} = \text{Depreciation per unit} \times \text{Current year usage}$$

An ***accelerated depreciation method*** expenses more of the asset's cost near the start of an asset's life and less at the end of its useful life. The main accelerated method of depreciation is the ***double-declining-balance-method***. The double-declining-balance-method multiplies an asset's decreasing boook value by a constant percentage that is twice the straight line depreciation rate. The depreciation rate is calculated as 1/Useful life. Therefore, the double-declining-balance-method rate will be $2 \times (1/\text{Useful life})$. Double-declining-balance amounts can be computed using the following formula:

$$\text{Double-declining-balance depreciation} = (\text{Cost} - \text{Accumulated depreciation} \times 2 \times \frac{1}{\text{Useful life}})$$

## 8.3 Recording disposals of Plant Assets

Eventually, an asset wears out or become obsolete. The business then has several options regarding property, plant, and equipment:

- Discard the plant asset
- Sell the plant asset
- Exchange the plant asset for another plant asset

Plant assets remain on the business' books until they are disposed of. If the asset is no longer useful, it is disposed of. This requires the business to remove the asset and associated accumulated depreciation from the books. Regardless of the type of disposal, there are four steps:

1. Bring the depreciation up to date.
2. Remove the old, disposed-of asset and associated accumulated depreciation from the books.
3. Record the value of any cash received (or paid) in the disposal of the asset.
4. Finally, determine the amount of any gain or loss. Gain or loss is determined by comparing the cash received and the fair value of any other assets received with the book value of the asset disposed of.

## 8.4 Accounting for Natural Resources

***Natural resoureces*** are assets that come from the earth that are consumed. Natural resources are expensed through depletion. ***Depletion*** is the process by which businesses spread the allocation of a natural resource's cost to expense over its usage.

## 8.5 Accounting for Intangible Assets

***Intangible assets*** are assets that have no physical form. Instead, these assets convey special rights from patents, copyrights, trademarks, and other creative works.

Intangible assets that are purchased are recorded at cost. If an intangible is not purchased, only some limited costs can be capitalized. Most purchased intangibles are expensed through ***amortization***, the allocation of the cost of an intangible asset to expense over its useful life. Amortization applies to intangibles exactly as depreciation applies to equipment and depletion to oil and timbler.

Intangibles either have a definite life or an indefinite life. Intangibles with an indefinite life have no factors that limit the usage of the intangible asset. Only intangibles that have a definite life are amortized. Intangible assets with an indefinite life are tested for impairment annually. ***Impairment*** occurs when the fair value of an asset is less than the book value. If an impairment occurs, the company records a loss in the period that the decline is identified.

### 8.5.1 Specific Intangibles

A ***patent*** is an intangible asset that is a federal government grant conveying an exclusive 20-year right to produce and sell an invention. This invention may be a process, product, or formula. A ***copyright*** is the exclusive right to reproduce and sell a book, musical, composition, film, other work of art, or intellectual property. A ***trademark*** is an asset that represents discinctive identifications of products or services.

***Franchises*** are priveleges granted by a business to sell goods or services under specified conditions. In accounting, ***goodwill*** is the excess of the cost to purchase another company over the fair value of its net assets. Goodwill is the value paid above the net worth of the company's assets and liabilities.