



GOALS

Your goals for this "welcoming" chapter are to learn about:

- [The nature of financial and managerial accounting information.](#)
- bản chất của thông tin kế toán tài chính và kế toán quản trị
- [The accounting profession and accounting careers.](#)
- Nghề kiểm toán và công việc kiểm toán
- [The fundamental accounting equation: Assets = Liabilities + Owners' Equity.](#)
- Công thức kế toán cơ bản : Tài sản = Nợ phải trả + Vốn chủ sở hữu
- [How transactions impact the fundamental accounting equation.](#)
- Những giao dịch ảnh hưởng đến công thức kế toán cơ bản như thế nào
- [The four core financial statements.](#)
- 4 báo cáo tài chính cơ bản (nòng cốt)

DISCUSSION

thảo luận

ACCOUNTING INFORMATION- thông tin kế toán

You likely have a general concept of what accountants do. They **capture** information about the transactions and events of a business, and summarize that activity in reports that are used by persons interested in the entity. But, you likely do not realize the **complexity** of **accomplishing** this task. It involves a talented **blending** of technical knowledge and measurement **artistry** that can only be fully appreciated via extensive study of the subject. The best **analogy** is to say that you probably know what a heart surgeon does, but you no doubt appreciate that considerable knowledge and skill is needed to successfully treat a patient. If you were studying to be a **surgeon**, you would likely begin with some basic anatomy class. In this chapter, you will begin your study of accounting by looking at the overall structure of accounting and the basic anatomy of reporting.

Bạn phải nắm được những khái niệm chung về công việc kế toán là gì. Kế toán phải nắm những thông tin về các giao dịch và sự kiện của doanh nghiệp, và tổng hợp những hoạt

động đó trên báo cáo và được sử dụng bởi những người quan tâm đến doanh nghiệp. Nhưng bạn rất khó để nhận ra những phức tạp khi thực hiện công việc này. Nó liên quan đến sự kết hợp khéo léo giữa việc hiểu biết về kiến thức chuyên môn và nghệ thuật tính toán cái mà chỉ được đánh giá đầy đủ thông qua nghiên cứu sâu các vấn đề. Một lập luận tốt nhất nói rằng bạn có thể biết những cuộc phẫu thuật tim được tiến hành như thế nào, nhưng bạn không khỏi băn khoăn để cân nhắc rằng những kỹ năng và kiến thức cơ bản cần thiết để điều trị cho một người bệnh thành công. Nếu bạn đang học để trở thành nhà phẫu thuật, bạn nên bắt đầu với kiến thức cơ bản phẫu thuật. Trong chương này, bạn sẽ bắt đầu việc nghiên cứu kiến thức kế toán bằng cách xem xét toàn bộ nền tảng kế toán và việc phân tích báo cáo cơ bản

Be advised that a true understanding of accounting does not come easily. It only comes with **determination** and hard work. But, if you **persevere**, you will be surprised at what you discover about accounting. Knowledge of accounting is very valuable to business success. And, once you **conquer** the basics, accounting is actually quite an interesting subject.

Được biết rằng sự am hiểu đúng đắn về kế toán không đến một cách dễ dàng. Nó chỉ đến khi có sự quyết tâm và làm việc chăm chỉ. Nhưng nếu bạn kiên trì, bạn sẽ ngạc nhiên về cái mà bạn khám phá về kế toán. Kiến thức về kế toán rất có giá đối với sự thành công của doanh nghiệp. Và khi bạn chinh phục được những kiến thức cơ bản, kế toán thực sự là một môn học rất thú vị

NEW WORDS – VOCABULARY

Capture /Keptro/ : nắm được, giành được, chiếm được

Complexity /Komplekxity/ : sự phức tạp

Accomplish /okomplish/ hoàn thành, đạt tới mục đích gì

Blending / kết hợp , trộn lẫn

Analogy / onenogy/ sự lập luận

Surgeon /sɔzɔn/ bác sĩ phẫu thuật

Determination / sự quyết tâm

Persevere / pɔsivia/ +with, at : bền chí, kiên trì

Conquer /KongKɔr/ : (v) chinh phục, chế ngự

ACCOUNTING DEFINED: It seems fitting to begin with a more formal definition of accounting: **Accounting** is a set of concepts and techniques that are used to measure and report financial information about an economic unit. The economic unit is generally considered to be a separate enterprise. The information is potentially reported to a variety of different types of interested parties. These include business managers, owners, creditors, governmental units, financial analysts, and even employees. In one way or another, these users of accounting information tend to be concerned about their own interests in the entity. Business managers need accounting information to make sound

leadership decisions. Investors hold out hope for profits that may eventually lead to distributions from the business (e.g., "dividends"). Creditors are always concerned about the entity's ability to repay its obligations. Governmental units need information to tax and regulate. Analysts use accounting data to form their opinions on which they base their investment recommendations. Employees want to work for successful companies to further their individual careers, and they often have bonuses or options tied to enterprise performance. Accounting information about specific entities helps satisfy the needs of all these interested parties.

ĐỊNH NGHĨA KẾ TOÁN

Có vẻ như phù hợp để bắt đầu với những định nghĩa thông thường hơn về kế toán. Kế toán là hàng loạt những khái niệm và kỹ thuật được sử dụng để tính toán và báo cáo thông tin tài chính về một đơn vị kinh tế. Đơn vị kinh tế thường được xem là một thực thể riêng biệt. Những thông tin được báo cáo một cách dễ hiểu bằng nhiều cách khác nhau đến các bên liên quan. Những người này bao gồm nhà quản lý doanh nghiệp, chủ nợ, đơn vị quản lý, nhà phân tích và thậm chí là người lao động. Bằng cách này hay cách khác, những người sử dụng thông tin kế toán có xu hướng quan tâm đến lợi ích của riêng họ trong doanh nghiệp. Nhà quản lý doanh nghiệp cần thông tin kế toán để đưa ra quyết định chỉ đạo đúng đắn. Nhà đầu tư tìm kiếm hi vọng lợi nhuận cái mà rốt cục được phân phối từ doanh nghiệp (lợi tức). Chủ nợ cũng luôn luôn quan tâm đến khả năng thanh toán những khoản nợ của doanh nghiệp. Nhà phân tích cũng sử dụng những tài liệu kế toán để hình thành quan điểm của họ về những vấn đề mà mọi người sẽ làm căn cứ gợi ý cho sự đầu tư của họ. Người lao động làm việc cho những công ty thành công để sự nghiệp cá nhân của họ phát triển hơn, và họ thường có khoản tiền thưởng hoặc những sự lựa chọn bị ràng buộc bởi công việc của doanh nghiệp. Thông tin kế toán về những đơn vị cụ thể sẽ giúp thỏa mãn nhu cầu của tất cả các bên có liên quan

The diversity of interested parties leads to a logical division in the discipline of accounting: financial accounting and managerial accounting. **Financial accounting** is concerned with external reporting of information to parties outside the firm. In contrast, **managerial accounting** is primarily concerned with providing information for internal management. You may have some trouble seeing why a distinction is needed; after all aren't we just reporting financial facts? Let's look closer at the distinctions.

Sự đa dạng của các bên liên quan dẫn đến sự phân chia hợp lý trong lĩnh vực kế toán : kế toán tài chính và kế toán quản trị. Kế toán tài chính liên quan đến việc báo cáo các thông tin cho các đối tượng bên ngoài doanh nghiệp; Ngược lại kế toán quản trị chủ yếu liên quan để việc cung cấp thông tin cho việc quản lý của đơn vị. Bạn có thể có một số băn khoăn tại sao sự phân biệt này là cần thiết. Cuối cùng chẳng phải là chúng ta chỉ báo cáo tình hình tài chính? Hãy xem xét cẩn thận hơn sự phân biệt này.

FINANCIAL ACCOUNTING: Consider that financial accounting is targeted toward a broad base of external users, none of whom control the actual preparation of reports or have access to underlying details. Their ability to understand and have confidence in reports is directly dependent upon standardization of the principles and practices that are



used to prepare the reports. Without such standardization, reports of different companies could be hard to understand and even harder to compare. As a result, there are well organized processes to bring consistency and structure to financial reporting. In the United States, a private sector group called the [Financial Accounting Standards Board \(FASB\)](#) is primarily responsible for developing the rules that form the foundation of financial reporting. With the increase in global trade, the International Accounting Standards Board (IASB) has been steadily gaining prominence as a global accounting rule setter.

Kế toán tài chính : Xem xét rằng kế toán tài chính với mục đích là hướng tới một số lớn những đối tượng bên ngoài., không ai kiểm soát được việc lập báo cáo thực tế hoặc có cơ hội để biết được chi tiết. Khả năng hiểu và có sự tin cậy về những báo cáo phụ thuộc trực tiếp vào sự chuẩn hoá các nguyên tắc và tình hình thực tế cái mà được sử dụng để lập báo cáo. Nếu không có sự tiêu chuẩn hoá, báo cáo của các công ty khác nhau rất khó để hiểu và thậm chí khó hơn để so sánh.

Financial reports prepared under the generally accepted accounting principles (GAAP) promulgated by such standard setting bodies are intended to be general purpose in orientation. This means they are not prepared especially for owners, or creditors, or any other particular user group. Instead, they are intended to be equally useful for all user groups. As such, attempts are made to keep them free from bias (neutral).

MANAGERIAL ACCOUNTING: In sharp contrast to financial accounting, managerial accounting information is intended to serve the specific needs of management. Business managers are charged with business planning, controlling, and decision making. As such, they may desire specialized reports, budgets, product costing data, and other details that are generally not reported on an external basis. Further, management may dictate the parameters under which such information is to be accumulated and presented. For instance, GAAP may require that certain research costs be deducted immediately in computing a business's externally reported income; on the other hand, management may see these costs as a long-term investment and stipulate that internal decision making be based upon income numbers that exclude such costs. This is their prerogative. Hopefully, such internal reporting is being done logically and rationally, but it need not follow any particular set of guidelines.

A QUALITY INFORMATION SYSTEM: Both financial accounting and managerial accounting depend upon a strong information system to reliably capture and summarize business transaction data. Information technology has radically reshaped this mundane part of the practice of accounting during the past 30 years. The era of the "green eye-shaded" accountant has been relegated to the annals of history. Now, accounting is more of a dynamic, decision-making discipline, rather than a bookkeeping task.

INHERENT LIMITATIONS: Accounting data is not absolute or concrete. Considerable amounts of judgment and estimation are necessary to develop the specific accounting measurements that are reported during a particular month, quarter, or year (e.g., how much pension expense should be reported *now* for the future benefits that are being

earned by employees *now*, but the amounts will not be known with certainty until many years to come?). About the only way around the problem of utilizing estimation in accounting is to wait until all facts are known with certainty before issuing any reports. However, by the time any information could be reported, it would be so stale as to lose its usefulness. Thus, in order to timely present information, it is considered to be far better to embrace reasonable estimations in the normal preparation of ongoing financial reports.

In addition, accounting has not yet advanced to a state of being able to value a business (or a business's assets). As such, many transactions and events are reported based upon the **historical cost principle** (in contrast to fair value). This principle holds that it is better to maintain accountability over certain financial statement elements at amounts that are objective and verifiable, rather than opening the door to random adjustments for value changes that may not be supportable. For example, land is initially recorded in the accounting records at its purchase price. That historical cost will not be adjusted even if the fair value is perceived as increasing. While this enhances the "reliability" of reported data, it can also pose a limitation on its "relevance."

THE ACCOUNTING PROFESSION AND CAREERS

THE ACCOUNTING PROFESSION: To decide to be an accountant is no more descriptive than deciding to be a doctor. Obviously, there are many specialty areas. Many accountants engage in the practice of **"public" accounting**, which involves providing audit, tax, and consulting services to the general public. To engage in the practice of public accounting usually requires one to be licensed as a **CPA** (Certified Public Accountant). **Auditing** involves the examination of transactions and systems that underlie an organization's financial reports, with the ultimate goal of providing an independent report on the appropriateness of financial statements. Tax services relate to the providing of help in the preparation and filing of tax returns and the rendering of advice on the tax consequences of alternative actions. Consulting services can vary dramatically, and include such diverse activities as information systems engineering to evaluating production methods. Many accountants are privately employed directly by small and large businesses (i.e., "industry accounting") and not-for-profit agencies (such as hospitals, universities, and charitable groups). They may work in areas of product costing and pricing, budgeting, and the examination of investment alternatives. They may focus on **internal auditing**, which involves looking at controls and procedures in use by their employers. Objectives of these reviews are to safeguard company resources and assess the reliability and accuracy of accounting information and accounting systems. They may serve as in-house tax accountants, financial managers, or countless other occupations. And, it probably goes without saying that many accountants work in the governmental sector, whether it be local, state, or national levels. You would expect to find many accountants at the Internal Revenue Service, General Accounting Office, Securities and Exchange Commission ("SEC" -- the USA governmental agency charged with regulating accounting and reporting by companies whose shares of stock is bought and sold in public markets), and even the Federal Bureau of Investigation.





ACCOUNTING AND PROFESSIONAL ETHICS: Because investors and creditors place great reliance on financial statements in making their investment and credit decisions, it is imperative that the financial reporting process be truthful and dependable. Accountants are expected to behave in an entirely ethical fashion, and this is generally the case. To help insure integrity in the reporting process, the profession has adopted a code of ethics to which its licensed members must adhere. In addition, checks and balances via the audit process, government oversight, and the ever vigilant "plaintiff's attorney" all serve a vital role in providing additional safeguards against the errant accountant. If you are preparing to enter the accounting profession, you should do so with the intention of behaving with honor and integrity. If you are not planning to enter the profession, you will likely rely upon accountants in some aspect of your personal or professional life.

You have every right to expect those accountants to behave in a completely trustworthy and ethical fashion. After all, you will be entrusting them with your financial resources and confidential information.

THE FUNDAMENTAL ACCOUNTING EQUATION

THE ACCOUNTING EQUATION: The basic features of the accounting model we use today trace their roots back over 500 years. Luca Pacioli, a Renaissance era monk, developed a method for tracking the success or failure of trading ventures. The foundation of that system continues to serve the modern business world well, and is the entrenched cornerstone of even the most elaborate computerized systems. The nucleus of that system is the notion that a business entity can be described as a collection of assets and the corresponding claims against those assets. The claims can be divided into the claims of creditors and owners (i.e., liabilities and owners' equity). This gives rise to the fundamental **accounting equation**:

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

ASSETS: **Assets** are the economic resources of the entity, and include such items as cash, accounts receivable (amounts owed to a firm by its customers), inventories, land, buildings, equipment, and even intangible assets like patents and other legal rights and claims. Assets are presumed to entail probable future economic benefits to the owner.

LIABILITIES: **Liabilities** are amounts owed to others relating to loans, extensions of credit, and other obligations arising in the course of business.

OWNERS' EQUITY: **Owners' equity** is the owner's "interest" in the business. It is sometimes called net assets, because it is equivalent to assets minus liabilities for a particular business. Who are the "owners?" The answer to this question depends on the legal form of the entity; examples of entity types include sole proprietorships, partnerships, and corporations. A **sole proprietorship** is a business owned by one person, and its equity would typically consist of a single owner's capital account. Conversely, a **partnership** is a business owned by more than one person, with its equity consisting of a

separate capital account for each partner. Finally, a **corporation** is a very common entity form, with its ownership interest being represented by divisible units of ownership called shares of stock. These shares are easily transferable, with the current holder(s) of the stock being the owners. The total owners' equity (i.e., "stockholders' equity") of a corporation usually consists of several amounts, generally corresponding to the **owner investments** in the capital stock (by shareholders) and additional amounts generated through earnings that have not been paid out to shareholders as dividends (**dividends** are distributions to shareholders as a return on their investment). Earnings give rise to increases in "**retained earnings**," while dividends (and losses) cause decreases.

| EDELWEISS CORPORATION Balance Sheet December 31, 20X3 | | | |
|---|-------------------------|-------------------------------------|-------------------------|
| Assets | | Liabilities | |
| Cash | \$ 25,000 | Accounts payable | \$ 50,000 |
| Accounts receivable | 50,000 | Loans payable | <u>125,000</u> |
| Inventories | 35,000 | Total liabilities | \$175,000 |
| Land | 125,000 | Stockholders' equity | |
| Buildings | 400,000 | Capital stock | \$120,000 |
| Equipment | 250,000 | Retained earnings | <u>600,000</u> |
| Other assets | <u>10,000</u> | Total stockholders' equity | <u>720,000</u> |
| Total assets | <u>\$895,000</u> | Total Liabilities and equity | <u>\$895,000</u> |

| | | | | |
|----------------------------|---|---------------------------------|---|--|
| ASSETS \$895,000 | = | LIABILITIES \$175,000 | + | STOCKHOLDERS' EQUITY \$720,000 |
|----------------------------|---|---------------------------------|---|--|

BALANCE SHEET: The fundamental accounting equation is the backbone of the accounting and reporting system. It is central to understanding a key financial statement known as the **balance sheet** (sometimes called the statement of financial position). The following illustration for Edelweiss Corporation shows a variety of assets that are reported at a total of \$895,000. Creditors are owed \$175,000, leaving \$720,000 of stockholders' equity. The stockholders' equity section is divided into the \$120,000 originally invested in Edelweiss Corporation by stockholders (i.e., capital stock), and the other \$600,000 that was earned (and retained) by successful business performance over the life of the company.

Does the stockholders' equity total mean the business is worth \$720,000? No! Why not? Because many assets are not reported at current value. For example, although the land cost \$125,000, the balance sheet does not report its current worth. Similarly, the business may have unrecorded resources to its credit, such as a trade secret or a brand name that allows it to earn extraordinary profits. If one is looking to buy stock in Edelweiss Corporation, they would surely give consideration to these important non-financial

statement based valuation considerations. This observation tells us that accounting statements are important in investment and credit decisions, but they are not the sole source of information for making investment and credit decisions.

HOW TRANSACTIONS IMPACT THE ACCOUNTING EQUATION

THE IMPACT OF TRANSACTIONS: The preceding balance sheet for Edelweiss was static. This means that it represented the financial condition at the noted date. But, each passing transaction or event brings about a change in the overall financial condition. Business activity will impact various asset, liability, and/or equity accounts; but, they will not disturb the equality of the accounting equation. So, how does this happen? To reveal the answer to this question, let's look at four specific transactions for Edelweiss Corporation. You will see how each transaction impacts the individual asset, liability, and equity accounts, without upsetting the basic equality of the overall balance sheet.

EDELWEISS COLLECTS AN ACCOUNT RECEIVABLE: If Edelweiss Corporation collected \$10,000 from a customer on an existing account receivable (i.e., not a new sale, just the collection of an amount that is due from some previous transaction), then the balance sheet would be revised as follows:

| EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (before indicated transaction) | | | EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (after indicated transaction) | |
|---|------------------|------------|--|-------------------|
| Assets | | | Assets | |
| Cash | \$ 25,000 | + \$10,000 | Cash | \$ 35,000 |
| Accounts receivable | 50,000 | - \$10,000 | Accounts receivable | 40,000 |
| Inventories | 35,000 | | Inventories | 35,000 |
| Land | 125,000 | | Land | 125,000 |
| Buildings | 400,000 | | Buildings | 400,000 |
| Equipment | 250,000 | | Equipment | 250,000 |
| Other assets | 10,000 | | Other assets | 10,000 |
| Total assets | \$895,000 | \$0 | Total assets | \$ 895,000 |
| Liabilities | | | Liabilities | |
| Accounts payable | \$ 50,000 | | Accounts payable | \$ 50,000 |
| Loans payable | 125,000 | | Loans payable | 125,000 |
| Total liabilities | \$175,000 | \$0 | Total liabilities | \$ 175,000 |
| Stockholders' equity | | | Stockholders' equity | |
| Capital stock | \$120,000 | | Capital stock | \$120,000 |
| Retained earnings | 600,000 | | Retained earnings | 600,000 |
| Total stockholders' equity | 720,000 | \$0 | Total stockholders' equity | 720,000 |
| Total Liabilities and equity | \$895,000 | \$0 | Total Liabilities and equity | \$ 895,000 |

This illustration plainly shows that cash (an asset) increased from \$25,000 to \$35,000, and accounts receivable (an asset) decreased from \$50,000 to \$40,000. As a result total assets did not change, and liabilities and equity accounts were unaffected. Thus, assets still equal liabilities plus equity.

EDELWEISS BUYS EQUIPMENT WITH LOAN PROCEEDS: Now, if Edelweiss Corporation purchased \$30,000 of equipment, agreeing to pay for it later (i.e. taking out a loan), then the balance sheet would be further revised as follows:

| EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (before indicated transaction) | | | EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (after indicated transaction) | |
|---|------------------|------------------|--|-------------------|
| Assets | | | Assets | |
| Cash | \$ 35,000 | | Cash | \$ 35,000 |
| Accounts receivable | 40,000 | | Accounts receivable | 40,000 |
| Inventories | 35,000 | | Inventories | 35,000 |
| Land | 125,000 | | Land | 125,000 |
| Buildings | 400,000 | | Buildings | 400,000 |
| Equipment | 250,000 | + \$30,000 | Equipment | 280,000 |
| Other assets | 10,000 | | Other assets | 10,000 |
| Total assets | \$895,000 | +\$30,000 | Total assets | \$ 925,000 |
| Liabilities | | | Liabilities | |
| Accounts payable | \$ 50,000 | | Accounts payable | \$ 50,000 |
| Loans payable | 125,000 | + \$30,000 | Loans payable | 155,000 |
| Total liabilities | \$175,000 | +\$30,000 | Total liabilities | \$ 205,000 |
| Stockholders' equity | | | Stockholders' equity | |
| Capital stock | \$120,000 | | Capital stock | \$120,000 |
| Retained earnings | 600,000 | | Retained earnings | 600,000 |
| Total stockholders' equity | 720,000 | \$0 | Total stockholders' equity | 720,000 |
| Total Liabilities and equity | \$895,000 | +\$30,000 | Total Liabilities and equity | \$ 925,000 |

This illustration shows that equipment (an asset) increased from \$250,000 to \$280,000, and loans payable (a liability) increased from \$125,000 to \$155,000. As a result, both total assets and total liabilities increased by \$30,000, but assets still equal liabilities plus equity.

EDELWEISS PROVIDES SERVICES TO A CUSTOMER ON ACCOUNT: What would happen if Edelweiss Corporation did some work for a customer in exchange for the customer's promise to pay \$5,000? This requires further explanation; try to follow this logic closely! You already know that retained earnings is the income of the business that has not been distributed to the owners of the business. When Edelweiss Corporation earned \$5,000 (which they will collect later) by providing a service to a customer, it can be said that they generated **revenue** of \$5,000. Revenue is the enhancement to assets resulting from providing goods or services to customers. Revenue will bring about an increase to income, and income is added to retained earnings. Can you follow that?

As you examine the following balance sheet, notice that accounts receivable and retained earnings went up by \$5,000 each, indicating that the business has more assets and more retained earnings. And, guess what: assets still equal liabilities plus equity.

| EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (before indicated transaction) | | | EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (after indicated transaction) | |
|---|------------------|------------------|--|-------------------|
| Assets | | | Assets | |
| Cash | \$ 35,000 | | Cash | \$ 35,000 |
| Accounts receivable | 40,000 | + \$5,000 | Accounts receivable | 45,000 |
| Inventories | 35,000 | | Inventories | 35,000 |
| Land | 125,000 | | Land | 125,000 |
| Buildings | 400,000 | | Buildings | 400,000 |
| Equipment | 280,000 | | Equipment | 280,000 |
| Other assets | 10,000 | | Other assets | 10,000 |
| Total assets | \$925,000 | + \$5,000 | Total assets | \$ 930,000 |
| Liabilities | | | Liabilities | |
| Accounts payable | \$ 50,000 | | Accounts payable | \$ 50,000 |
| Loans payable | 155,000 | | Loans payable | 155,000 |
| Total liabilities | \$205,000 | + \$0 | Total liabilities | \$ 205,000 |
| Stockholders' equity | | | Stockholders' equity | |
| Capital stock | \$120,000 | | Capital stock | \$120,000 |
| Retained earnings | 600,000 | + \$5,000 | Retained earnings | 605,000 |
| Total stockholders' equity | 720,000 | + \$5,000 | Total stockholders' equity | 725,000 |
| Total Liabilities and equity | \$925,000 | + \$5,000 | Total Liabilities and equity | \$ 930,000 |

EDELWEISS PAYS EXPENSES WITH CASH: It would be nice if you could run a business without incurring any expenses. However, such is not the case. Expenses are the outflows and obligations that arise from producing goods and services. Imagine that Example Corporation paid \$3,000 for expenses:

| EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (before indicated transaction) | | | EDELWEISS CORPORATION Balance Sheet December 31, 20X3 (after indicated transaction) | |
|---|------------------|------------------|--|-------------------|
| Assets | | | Assets | |
| Cash | \$ 35,000 | - \$3,000 | Cash | \$ 32,000 |
| Accounts receivable | 45,000 | | Accounts receivable | 45,000 |
| Inventories | 35,000 | | Inventories | 35,000 |
| Land | 125,000 | | Land | 125,000 |
| Buildings | 400,000 | | Buildings | 400,000 |
| Equipment | 280,000 | | Equipment | 280,000 |
| Other assets | 10,000 | | Other assets | 10,000 |
| Total assets | \$930,000 | - \$3,000 | Total assets | \$ 927,000 |
| Liabilities | | | Liabilities | |
| Accounts payable | \$ 50,000 | | Accounts payable | \$ 50,000 |
| Loans payable | 155,000 | | Loans payable | 155,000 |
| Total liabilities | \$205,000 | + \$0 | Total liabilities | \$ 205,000 |
| Stockholders' equity | | | Stockholders' equity | |
| Capital stock | \$120,000 | | Capital stock | \$120,000 |
| Retained earnings | 605,000 | - \$3,000 | Retained earnings | 602,000 |
| Total stockholders' equity | 725,000 | - \$3,000 | Total stockholders' equity | 722,000 |
| Total Liabilities and equity | \$930,000 | - \$3,000 | Total Liabilities and equity | \$ 927,000 |



GENERALIZING ABOUT THE IMPACT OF TRANSACTIONS: There are countless types of transactions that can occur, and each and every transaction can be described in terms of its impact on assets, liabilities, and equity. What is important to know is that no transaction will upset the fundamental accounting equation of assets = liabilities + owners' equity.

DISTINGUISHING BETWEEN REVENUE AND INCOME: In day-to-day conversation, some terms can often be used casually and without a great deal of precision. Words may be treated as synonymous, when in fact they are not. Such is the case for the words "income" and "revenue." Each term has a very precise meaning, and you should accustom yourself to the correct usage. It has already been pointed out that revenues are enhancements resulting from providing goods and services to customers. Conversely, expenses can generally be regarded as costs of doing business. This gives rise to another "accounting equation":

$$\text{Revenues} - \text{Expenses} = \text{Income}$$

Revenue is the "top line" amount corresponding to the total benefits generated from business activity. Income is the "bottom line" amount that results after deducting the expenses from revenue. In some countries, revenue is also referred to as "turnover."

THE CORE FINANCIAL STATEMENTS

Your future will undoubtedly be marked by numerous decisions about investing money in the capital stock of some corporation. Another option that will present itself is to loan money to a company, either directly, or by buying that company's debt instruments known as "bonds." Stocks and bonds are two of the most prevalent financial instruments of the modern global economy. The financial press and television devote seemingly endless coverage to headline events pertaining to large public corporations. Public companies are those with securities that are readily available for purchase/sale through organized stock markets. Many more companies are private, meaning their stock and debt is in the hands of a narrow group of investors and banks.

If you are contemplating an investment in a public or private entity, there is certain information you will logically seek to guide your decision process. What types of information will you desire? What do you want to know about the companies in which you are considering an investment? If you were to prepare a list of questions for the company's management, what subjects would be included? Whether this challenge is posed to a sophisticated investor or to a new business student, the listing almost always includes the same basic components.



What are the corporate assets? Where does the company operate? What are the key products? How much income is being generated? Does the company pay dividends? What is the corporate policy on ethics and environmental responsibility?

Many such topics are noted within the illustrated "thought cloud." Some of these topics are financial in nature (noted in blue). Other topics are of more general interest and cannot be communicated in strict mathematical terms (noted in red).

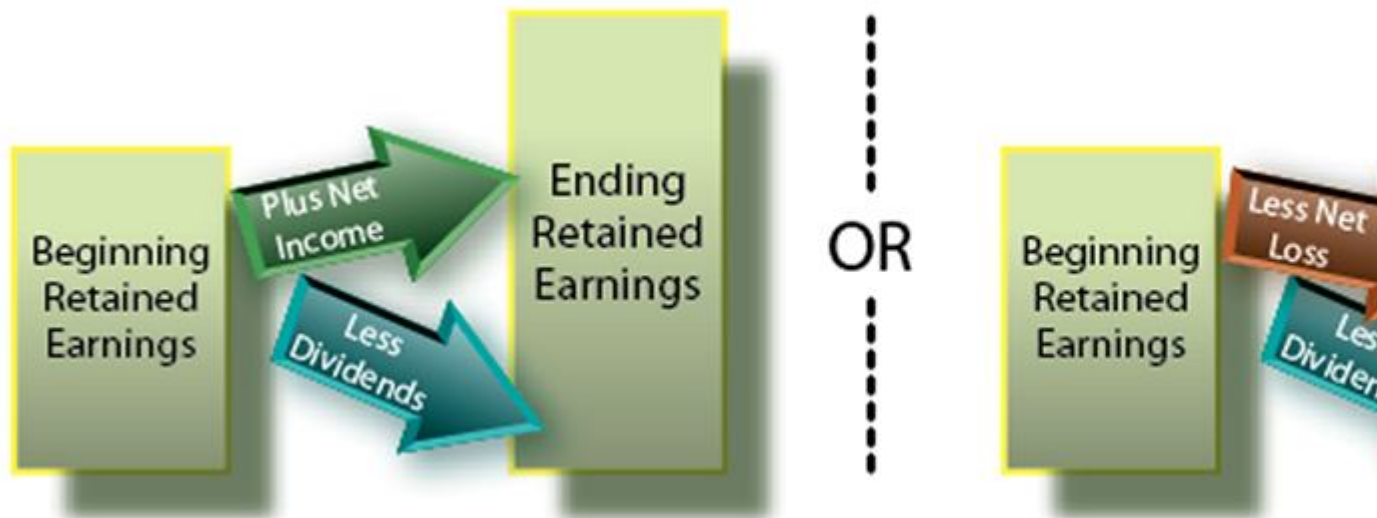
Financial accounting seeks to directly report information for the topics noted in blue. Additional supplemental disclosures frequently provide insight about subjects such as those noted in red. But, you would also need to gain additional information by reviewing corporate web sites (many have separate sections devoted to their investors), filings with the securities regulators, financial journals and magazines, and other such sources. Most companies will have annual meetings for shareholders and host web casts every three months (quarterly). These events are very valuable in allowing investors and creditors to make informed decisions about the company, as well as providing a forum for direct questioning of management. You might even call a company and seek "special insight" about emerging trends and developments. Be aware, however, that the company will likely not be able to respond in a meaningful way. Securities laws have very strict rules and penalties that are meant to limit selective or unique disclosures to any one investor or group (in the United States: Regulation Full Disclosure/Reg. FD). It is always amusing, but rarely helpful, to review "message boards" where people anonymously post their opinions about a particular company.

FINANCIAL STATEMENTS: Financial accounting information is conveyed through a standardized set of reports. You have already been introduced to the balance sheet. The other fundamental **financial statements** are the income statement, statement of retained earnings, and statement of cash flows. There are many rules that govern the form and content of each financial statement. At the same time, those rules are not so rigid as to preclude variations in the exact structure or layout. For instance, the earlier illustration for Edelweiss was first presented as a **"horizontal" layout** of the balance sheet. The subsequent Edelweiss examples were representative of **"vertical" balance sheet** arrangements. Each approach, and others, is equally acceptable. The basic form and content of each core financial statement is as follows:

- **INCOME STATEMENT:** A summary of an entity's results of operation for a specified period of time is revealed in the **income statement**, as it provides information about revenues generated and expenses incurred. The difference between the revenues and expenses is identified as the **net income** or **net loss**. The income statement can be prepared using a **single-step or a multiple-step** approach, and might be further modified to include a number of special disclosures relating to unique items. These topics will be amplified in a number of subsequent chapters. For now, take careful note that the income statement relates to activities of a specified time period (e.g., year, quarter, month), as is clearly noted in its title:

| QUARTZ CORPORATION | | |
|---------------------------------------|----------------|--------------------------|
| Income Statement | | |
| For the Year Ending December 31, 20X9 | | |
| Revenues | | |
| Services to customers | \$ 750,000 | |
| Interest revenue | <u>15,000</u> | |
| Total revenues | | \$ 765,000 |
| Expenses | | |
| Salaries | \$ 235,000 | |
| Rent | 115,000 | |
| Other operating expenses | <u>300,000</u> | |
| Total expenses | | <u>650,000</u> |
| Net income | | <u><u>\$ 115,000</u></u> |

- *THE STATEMENT OF RETAINED EARNINGS*: The example balance sheets for Edelweiss revealed how retained earnings increased and decreased in response to events that impacted income. You also know that retained earnings is reduced by dividends paid to shareholders.



The **statement of retained earnings** provides a succinct reporting of these changes in retained earnings from one period to the next. In essence, the statement is nothing more than a reconciliation or "bird's-eye view" of the bridge between the retained earnings amounts appearing on two successive balance sheets:

| QUARTZ CORPORATION Statement of Retained Earnings For the Year Ending December 31, 20X9 | |
|--|--------------------------|
| Retained earnings - January 1, 20X9 | \$ 400,000 |
| Plus: Net income | <u>115,000</u> |
| | \$ 515,000 |
| Less: Dividends | <u>35,000</u> |
| Retained earnings - December 31, 20X9 | <u><u>\$ 480,000</u></u> |

If you examine very many sets of financial statements, you will soon discover that many companies provide an expanded statement of stockholders' equity in lieu of the required statement of retained earnings. The statement of stockholders' equity portrays not only the changes in retained earnings, but also changes in other equity accounts such as capital stock. The [expanded statement of stockholders' equity](#) is presented in a subsequent chapter.

- **BALANCE SHEET:** The balance sheet focuses on the accounting equation by revealing the economic resources owned by an entity and the claims against those resources (liabilities and owners' equity). The balance sheet is prepared as of a specific date, whereas the income statement and statement of retained earnings cover a period of time. Accordingly, it is sometimes said that balance sheets portray financial position (or condition) while other statements reflect results of operations. Quartz's balance sheet is as follows:

| QUARTZ CORPORATION | |
|------------------------------|-------------------|
| Balance Sheet | |
| December 31, 20X9 | |
| Assets | |
| Cash | \$ 192,000 |
| Accounts receivable | 248,000 |
| Land | 450,000 |
| Other assets | <u>10,000</u> |
| Total assets | <u>\$ 900,000</u> |
| Liabilities | |
| Salaries payable | \$ 34,000 |
| Accounts payable | <u>166,000</u> |
| Total liabilities | \$ 200,000 |
| Stockholders' equity | |
| Capital stock | \$ 220,000 |
| Retained earnings | <u>480,000</u> |
| Total stockholders' equity | <u>700,000</u> |
| Total Liabilities and equity | <u>\$ 900,000</u> |

- STATEMENT OF CASH FLOWS:** The statement of cash flows details the enterprise's cash flows. This operating statement reveals how cash is generated and expended during a specific period of time. It consists of three unique sections that isolate the cash inflows and outflows attributable to (a) operating activities, (b) investing activities, and (c) financing activities. Notice that the cash provided by operations is not the same thing as net income found in the income statement. This result occurs because some items hit income and cash flows in different periods. For instance, remember how Edelweiss (from the earlier illustration) generated income from a service provided on account. That transaction increased income without a similar effect on cash. These differences tend to even out over time.

Suffice it to say that the underpinnings of the statement cash flows require a fairly complete knowledge of basic accounting. Do not be concerned if you feel like you lack a complete comprehension at this juncture. A future chapter is devoted to the statement.

| QUARTZ CORPORATION Statement of Cash Flows For the Year Ending December 31, 20X9 | |
|---|--------------------------|
| Operating activities | |
| Cash received from customers | \$ 720,000 |
| Cash received for interest | 15,000 |
| Cash paid for salaries | (240,000) |
| Cash paid for rent | (115,000) |
| Cash paid for other items | <u>(300,000)</u> |
| Cash provided by operations | \$ 80,000 |
| Investing activities | |
| Purchase of land | (250,000) |
| Financing activities | |
| Payment of dividends | <u>(35,000)</u> |
| Decrease in cash | \$ (205,000) |
| Cash, January 1 | <u>397,000</u> |
| Cash, December 31 | <u><u>\$ 192,000</u></u> |

ARTICULATION: It is important for you to take note of the fact that the income statement, statement of retained earnings, and balance sheet articulate. This means they mesh together in a self-balancing fashion. The income for the period ties into to the statement of retained earnings, and the ending retained earnings ties into the balance sheet. This final tie-in causes the balance sheet to balance. These relationships are illustrated in the following diagram.

UNLOCKING THE MYSTERY OF ARTICULATION: It seems almost magical that the final tie-in of retained earnings will exactly cause the balance sheet to balance. This is reflective of the brilliance of Pacioli's model, and is indicative of why it has survived for centuries. [This link jumps](#) to a series of web pages that comprehensively illustrate how transactions impact the income statement, statement of retained earnings, and balance sheet. To conclude this chapter, you should click through the pages and study the impact of each transaction on the financial statements.

| QUARTZ CORPORATION Income Statement For the Year Ending December 31, 20X9 | | |
|---|----------------|------------------|
| Revenues | | |
| Services to customers | \$750,000 | |
| Interest income | <u>15,000</u> | |
| Total revenues | | \$765,000 |
| Expenses | | |
| Salaries | \$235,000 | |
| Rent | <u>115,000</u> | |
| Other operating expenses | <u>300,000</u> | |
| Total expenses | | 650,000 |
| Net income | | <u>\$115,000</u> |

| QUARTZ CORPORATION Balance Sheet December 31, 20X9 | |
|--|------------------|
| Assets | |
| Cash | \$192,000 |
| Accounts receivable | 248,000 |
| Land | 450,000 |
| Other assets | <u>10,000</u> |
| Total assets | <u>\$900,000</u> |
| Liabilities | |
| Salaries payable | \$ 34,000 |
| Accounts payable | <u>166,000</u> |
| Total liabilities | \$200,000 |
| Stockholders' equity | |
| Capital stock | \$220,000 |
| Retained earnings | <u>480,000</u> |
| Total stockholders' equity | 700,000 |
| Total Liabilities and equity | <u>\$900,000</u> |

| QUARTZ CORPORATION Statement of Retained Earnings For the Year Ending December 31, 20X9 | |
|---|------------------|
| Retained earnings - January 1, 20X9 | \$400,000 |
| Plus: Net income | <u>115,000</u> |
| | \$515,000 |
| Less: Dividends | <u>35,000</u> |
| Retained earnings - December 31, 20X9 | <u>\$480,000</u> |

INCOME FLOWS TO RETAINED
EARNINGS AND RETAINED EARNINGS
FLOWS TO THE BALANCE SHEET, CAUSING
THE BALANCE SHEET TO BALANCE





[introduction](#) [chapters](#)

chapter 2

Information Processing

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "information processing" chapter are to learn about:

- [Accounts, debits and credits.](#)
- [The journal.](#)
- [The general ledger.](#)
- [The trial balance.](#)
- [Computerized processing systems.](#)
- [T-Accounts.](#)

DISCUSSION

ACCOUNTS, DEBITS AND CREDITS

ACCOUNTING SYSTEMS: The previous chapter showed how transactions caused financial statement amounts to change. Message boxes, arrows, before and after examples, etc. were used to develop the illustrations. Imagine if a real business tried to keep up with its affairs this way! Perhaps a giant chalk board could be set up in the accounting department. As transactions occurred, they would be called in to the department and the chalk board would be updated. Chaos would quickly rule. Even if the business could manage to figure out what its financial statements were supposed to contain, it probably could not systematically describe the transactions that produced those results. Obviously, a system is needed.

It is imperative that a business develop a reliable accounting system to capture and summarize its voluminous transaction data. The system must be sufficient to fuel the preparation of the financial statements, and be capable of maintaining retrievable documentation for each and every transaction. In other words, some transaction logging process must be in place. In general terms, an accounting system is a system where transactions and events are reliably processed and summarized into useful financial statements and reports. Whether this system is manual or automated, the heart of the system will contain the basic processing tools: accounts, debits and credits, journals, and the general ledger. This chapter will provide insight into these tools and the general structure of a typical accounting system.

ACCOUNTS: The records that are kept for the individual asset, liability, equity, revenue, expense, and dividend components are known as **accounts**. In other words, a business would maintain an account for cash, another account for inventory, and so forth for every other financial statement element. All accounts, collectively, are said to comprise a firm's general ledger. In a manual processing system, you could imagine the general ledger as nothing more than a

notebook, with a separate page for every account. Thus, you could thumb through the notebook to see the "ins" and "outs" of every account, as well as existing balances. An account could be as simple as the following:

| ACCOUNT: Cash | | | | | |
|---------------|---------------|----------------------|-----------|----------|------|
| | Date | Description | Increase | Decrease | Bala |
| | Jan. 1, 20X3 | Balance forward | | | \$ |
| | Jan. 2, 20X3 | Collected receivable | \$ 10,000 | | |
| | Jan. 3, 20X3 | Cash sale | 5,000 | | |
| | Jan. 5, 20X3 | Paid rent | | \$ 7,000 | |
| | Jan. 7, 20X3 | Paid salary | | 3,000 | |
| | Jan. 8, 20X3 | Cash sale | 4,000 | | |
| | Jan. 8, 20X3 | Paid bills | | 2,000 | |
| | Jan. 10, 20X3 | Paid tax | | 1,000 | |
| | Jan. 12, 20X3 | Collected receivable | 7,000 | | |

This account reveals that cash has a balance of \$63,000 as of January 12. By examining the account, you can see the various transactions that caused increases and decreases to the \$50,000 beginning of month cash balance. In many respects, this Cash account resembles the "register" you might keep for a wallet style check book. If you were to prepare a balance sheet on January 12, you would include cash for the indicated amount (and, so forth for each of the other accounts comprising the entire financial statements).

DEBITS AND CREDITS: Without a doubt, you have heard or seen a reference to debits and credits; perhaps you have had someone "credit" your account or maybe you have used a "debit" card to buy something. **Debits** (abbreviated "dr") and **credits** (abbreviated "cr") are unique accounting tools to describe the change in a particular account that is necessitated by a transaction. In other words, instead of saying that cash is "increased" or "decreased," we say that cash is "debited" or "credited." This method is again traced to Pacioli, the Franciscan monk who is given credit for the development of our enduring accounting model. Why add this complexity -- why not just use plus and minus like in the previous chapter? You will soon discover that there is an ingenious answer to this question!

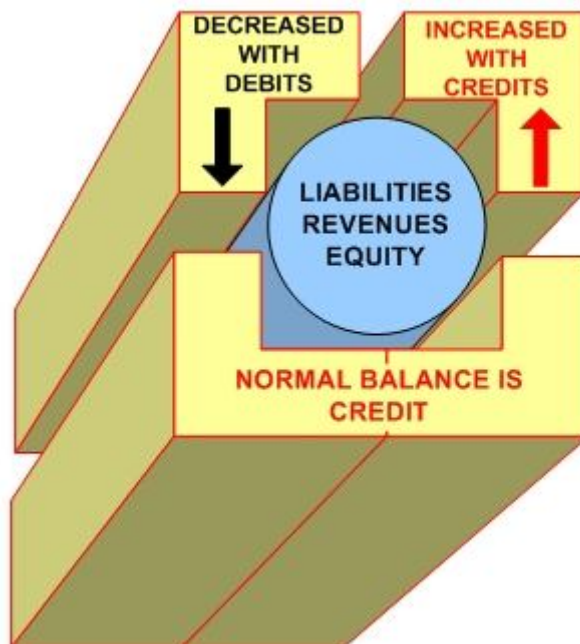
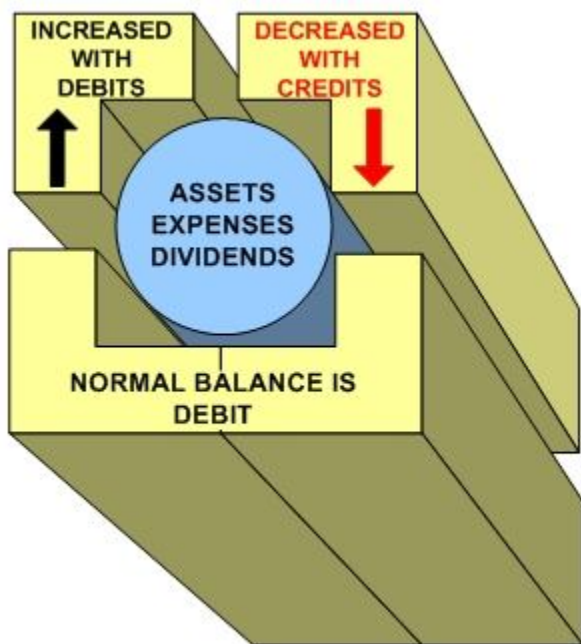
Understanding the answer to this question begins by taking note of two very important observations (the observations are linked to a pop-up window that includes additional explanatory material that may aid your understanding):

(1) every transaction can be described in debit/credit form

and

(2) for every transaction, debits = credits

THE FALLACY OF "+/-" NOMENCLATURE: The second observation above would not be true for an increase/decrease system. For example, if services are provided to customers for cash, both cash and revenues would increase (a "+/+" outcome). On the other hand, paying an account payable causes a decrease in cash and a decrease in accounts payable (a "-/-" outcome).



Finally, some transactions are a mixture of increase/de

crease effects; using cash to buy land causes cash to decrease and land to increase (a "-/+ outcome). In the previous chapter, the "+/-" nomenclature was used for the various illustrations. Take time now to quickly navigate through the [comprehensive illustration](#) that was provided at the conclusion of Chapter 1. As you do so, be sure to notice the various combinations of pluses and minuses, and that pluses do not necessarily equal minuses for every transaction.

As you can tell by reviewing the illustration, the "+/-" system lacks internal consistency. Therefore, it is easy to get something wrong and be completely unaware that something has gone amiss. On the other hand, the debit/credit system has internal consistency. If one attempts to describe the effects of a transaction in debit/credit form, it will be readily apparent that something is wrong when debits do not equal credits. Even modern computerized systems will challenge or preclude any attempt to enter an "unbalanced" transaction that does not satisfy the condition of debits = credits.

THE DEBIT/CREDIT RULES: At first, it is natural for the debit/credit rules to seem confusing. However, the debit/credit rules are [inherently logical](#) (the logic is explained at the linked material). But, memorization usually precedes comprehension. So, you are well advised to memorize the "debit/credit" rules now. If you will thoroughly memorize these rules first, your life will be much easier as you press forward with your studies of accounting.

ASSETS/EXPENSES/DIVIDENDS: As shown at left, these three types of accounts follow the same set of debit/credit rules. Debits increase these accounts and credits decrease these accounts. These accounts normally carry a debit balance. To aid your recall, you might rely on this slightly off-color mnemonic: *D-E-A-D* = **d**ebits increase **e**xpenses, **a**ssets, and **d**ividends.

LIABILITIES/REVENUES/EQUITY: These three types of accounts follow rules that are the opposite of those just described. Credits increase liabilities, revenues, and equity, while debits result in decreases. These accounts normally carry a credit balance.

DEBITS AND CREDIT IN ACTION: [This link returns to the comprehensive illustration from Chapter 1](#), except that the transaction message boxes are now surrounded in black lines for debits and red lines for credits. In clicking through this illustration, carefully note how the dollar amount of debits (the amount in black boxes, whether + or -) equal the dollar amount of credits (the amount in red boxes, whether + or -). An explanatory message accompanies each transaction to aid your understanding.

ANALYSIS OF TRANSACTIONS AND EVENTS: You now know that transactions and events can be expressed in "debit/credit" terminology. In essence, accountants have their own unique shorthand to portray the financial statement consequence for every recordable event. This means that as transactions occur, it is necessary to perform an analysis to determine (a) what



accounts are impacted and (b) how they are impacted (increased or decreased). Then, debits and credits are applied to the accounts, utilizing the rules set forth in the preceding paragraphs.

Usually, a recordable transaction will be evidenced by some "source document" that supports the underlying transaction. A cash disbursement will be supported by the issuance of a check. A sale might be supported by an invoice issued to a customer. Receipts may be retained to show the reason for a particular expenditure. A time report may support payroll costs. A tax statement may document the amount paid for taxes. A cash register tape may show cash sales. A bank deposit slip may show collections of customer receivables. Suffice it to say, there are many potential source documents, and this is just a small sample. Source documents usually serve as the trigger for initiating the recording of a transaction. The source documents are analyzed to determine the nature of a transaction and what accounts are impacted. Source documents should be retained (perhaps in electronic form) as an important part of the records supporting the various debits and credits that are entered into the accounting records.

A properly designed accounting system will have controls to make sure that all transactions are fully captured. It would not do for transactions to slip through the cracks and go unrecorded. There are many such safeguards that can be put in place, including use of prenumbered documents and regular reconciliations. For example, you likely maintain a checkbook where you record your cash disbursements. Hopefully, you keep up with all of the checks (by check number) and perform a monthly reconciliation to make sure that your checkbook accounting system has correctly reflected all of your disbursements. A business must engage in similar activities to make sure that all transactions and events are recorded correctly. Good controls are essential to business success.

DETERMINING AN ACCOUNT'S BALANCE: The balance of a specific account can be determined by considering its beginning (of period) balance, and then netting or offsetting all of the additional debits and credits to that account during the period. Earlier, an illustration for a Cash account was presented. That illustration was developed before you were introduced to debits and credits. Now, you know that accounts are more likely maintained by using the debit/credit system. So, the Cash account is repeated below, except that the increase/decrease columns have been replaced with the more traditional debit/credit column headings. A typical Cash account would look similar to this illustration:

| ACCOUNT: Cash | | | | | |
|---------------|----------------------|-----------|----------|-----|----|
| Date | Description | Debit | Credit | Bal | |
| Jan. 1, 20X3 | Balance forward | | | | \$ |
| Jan. 2, 20X3 | Collected receivable | \$ 10,000 | | | |
| Jan. 3, 20X3 | Cash sale | 5,000 | | | |
| Jan. 5, 20X3 | Paid rent | | \$ 7,000 | | |
| Jan. 7, 20X3 | Paid salary | | 3,000 | | |
| Jan. 8, 20X3 | Cash sale | 4,000 | | | |
| Jan. 8, 20X3 | Paid bills | | 2,000 | | |
| Jan. 10, 20X3 | Paid tax | | 1,000 | | |
| Jan. 12, 20X3 | Collected receivable | 7,000 | | | |

COMMON MISUNDERSTANDING ABOUT CREDITS: Some people wrongly assume that credits always reduce an account balance. However, a quick review of the debit/credit rules

reveals that this is not true. Where does this notion come from? Probably because of the common phrase "we will credit your account." This wording is often used when you return goods purchased on credit; but, carefully consider that your account (with the store) is *on the store's books* as an asset account (specifically, an account receivable from you). Thus, the store is reducing its accounts receivable asset account (with a credit) when it agrees to "credit your account."

On the other hand, some may assume that a credit always increases an account. This incorrect notion may originate with common banking terminology. Assume that Matthew made a deposit in his checking account at Monalo Bank. Monalo's balance sheet would include an obligation ("liability") to Matthew for the amount of money on deposit. This liability would be credited each time Matthew adds to his account. Thus, Matthew is told that his account is being "credited" when he makes a deposit. On your books you would debit (decrease) a payable account (liability).

THE JOURNAL

KEEPING IT SIMPLE: Most everyone is intimidated by new concepts and terminology (like debits, credits, journals, etc.). But, learning can be made quite simple by relating new concepts to preexisting notions that are already well understood. So, think: what do you know about a journal (not an accounting journal, just any journal)? It's just a log book, right? A place where you can record a history of transactions and events -- usually in date (chronological) order. But, you knew that.

Likewise, an accounting **journal** is just a log book that contains a chronological listing of a company's transactions and events. However, rather than including a detailed narrative description of a company's transactions and events, the journal lists the items by a "form of shorthand notation." Specifically, the notation indicates the accounts involved, and whether each is debited or credited. Remember what was said at the beginning of the chapter: *"The system must be sufficient to fuel the preparation of the financial statements, and be capable of maintaining retrievable documentation for each and every transaction. In other words, some transaction logging process must be in place."* The journal satisfies the need for this logging process!

The general journal is sometimes called the book of original entry. This means that source documents are reviewed and interpreted as to the accounts involved. Then, they are documented in the journal via their debit/credit format. As such the general journal becomes a log book of the recordable transactions and events. The journal is not sufficient, by itself, to prepare financial statements. That objective is fulfilled by subsequent steps. But, maintaining the journal is the point of beginning toward that end objective.

ILLUSTRATING THE ACCOUNTING JOURNAL: The following illustration draws upon the facts for the Xao Corporation (linked to earlier in this chapter, and at the end of the previous chapter). Specifically it shows the **journalizing** process for Xao's transactions. You should review it carefully, specifically noting that it is in chronological order with each transaction of the business being reduced to the short-hand description of its debit/credit effects. You will also note that each transaction is followed by a brief narrative description; this is a good practice to provide further documentation. For each transaction, it is customary to list "debits" first (flush left), then the credits (indented right). Finally, notice that a transaction may involve more than two accounts (as in the January 28 transaction below); the corresponding journal entry for these complex transactions is called a "compound" entry.

As you review the general journal for Xao, note that it is only two pages long. An actual journal for a business might consume hundreds and thousands of pages to document its many

transactions. As a result, some businesses may maintain the journal in electronic form only. As you review Xao's general journal, notice that you can get a little help with the debit/credit rules by clicking on the account name within the journal. This helpful tool is maintained throughout the remainder of the book.

| GENERAL JOURNAL | | Page 1 | |
|-----------------|--|--------|---------|
| Date | Accounts | Debits | Credits |
| 1-1-X3 | Cash | 25,000 | |
| | Capital Stock | | 25,000 |
| | <i>Issued stock to shareholders, in exchange for cash</i> | | |
| 1-4-X3 | Advertising Expense | 2,000 | |
| | Cash | | 2,000 |
| | <i>Paid advertising expense for initial advertising programs</i> | | |
| 1-8-X3 | Cash | 4,000 | |
| | Service Revenue | | 4,000 |
| | <i>Provided services to customers for cash</i> | | |
| 1-15-X3 | Utility Expense | 1,000 | |
| | Accounts Payable | | 1,000 |
| | <i>Received bill for utility costs incurred</i> | | |
| 1-17-X3 | Accounts Receivable | 8,000 | |
| | Service Revenue | | 8,000 |
| | <i>Provided services to customers on account</i> | | |
| 1-18-X3 | Accounts Payable | 500 | |
| | Cash | | 500 |
| | <i>Paid half of the amount due on the utility bill received on January 15</i> | | |
| GENERAL JOURNAL | | Page 2 | |
| Date | Accounts | Debits | Credits |
| 1-25-X3 | Cash | 4,800 | |
| | Accounts Receivable | | 4,800 |
| | <i>Received 60% of the amount due on the receivable that was established on January 17</i> | | |
| 1-28-X3 | Land | 15,000 | |
| | Cash | | 5,000 |
| | Note Payable | | 10,000 |

| ACCOUNT: Cash | | | | |
|---------------|-----------------|-----------|----------|---------|
| Date | Description | Debit | Credit | Balance |
| Jan. 1, 20X3 | Balance forward | | | \$ - |
| Jan. 1, 20X3 | Journal Page 1 | \$ 25,000 | | 25,000 |
| Jan. 4, 20X3 | Journal Page 1 | | \$ 2,000 | 23,000 |
| Jan. 8, 20X3 | Journal Page 1 | 4,000 | | 27,000 |
| Jan. 18, 20X3 | Journal Page 1 | | 500 | 26,500 |
| Jan. 25, 20X3 | Journal Page 2 | 4,800 | | 31,300 |
| Jan. 28, 20X3 | Journal Page 2 | | 5,000 | 26,300 |
| | | | | |
| | | | | |

| | | | |
|---|--|--|--|
| <i>Purchased land by giving \$5,000 cash, and promising to pay the remainder in 90 days</i> | | | |
| | | | |
| | | | |

Now that you have reviewed the journal entries for January, consider a few more points.

SPECIAL JOURNALS: First, the illustrated journal was referred to as a "general" journal. All transactions and events can be recorded in the general journal. However, a business may sometimes use "special journals." Special journals are totally optional; they are typically employed when there are many redundant transactions. Thus, a company could have special journals for each of the following: cash receipts, cash payments, sales, purchases, and/or payroll. These special journals do not replace the general journal. Instead, they just strip out recurring type transactions and place them in their own separate journal. The transaction descriptions associated with each transaction found in the general journal are not normally needed in a special journal, given that each transaction is redundant in nature. Without special journals, you can well imagine how voluminous a general journal could become. But, for learning purposes, let's just rely on the general journal to accomplish our goals.

PAGE NUMBERING: Second, notice that the illustrated journal consisted of two pages (labeled page 1 and page 2). Although the journal is chronological, it is helpful to have the page number indexing for transaction cross-referencing and working backward from financial statement amounts to individual transactions.

BUT, WHAT ARE THE ACCOUNT BALANCES?: The general journal is a great tool to capture transaction and event details, but it certainly does nothing to tell a company about the balance in each specific account. For instance, how much cash does Xao Corporation have at the end of January? One could go through the journal and net the debits and credits to Cash ($\$25,000 - \$2,000 + \$4,000 - \$500 + \$4,800 - \$5,000 = \$26,300$). But, this is tedious and highly susceptible to error. It would become virtually impossible if the journal were hundreds of pages long. A better way is needed. This is where the general ledger comes into play.

THE GENERAL LEDGER

INTRODUCING THE LEDGER CONCEPT: As you just saw, the general journal is, in essence, a notebook that contains page after page of detailed accounting transactions. In contrast, the **general ledger** is, in essence, another notebook that contains a page for each and every account in use by a company. The ledger account for Xao would include the Cash page as illustrated at right. Xao's transactions utilized all of the following accounts:

- Cash
- Accounts Receivable
- Land
- Accounts Payable
- Notes Payable
- Capital Stock

- Service Revenue
- Advertising Expense
- Utilities Expense

Therefore, Xao Corporation's general ledger will include a separate page for each of these nine accounts.

POSTING: Before diving into the details of each account, let's consider what we are about to do. We are going to determine the balance of each specific account by **posting**. To do this, we will copy ("post") the entries listed in the journal into their respective ledger accounts. In other words, the debits and credits in the journal will be accumulated ("transferred"/"sorted") into the appropriate debit and credit columns of each ledger page. Here is an illustration of posting to the Cash account. A similar process would occur for each of the other accounts:

| GENERAL JOURNAL | | PAGE 1 | |
|-----------------|---|--------------------|--------|
| Jan. 1 | Cash Capital Stock <i>Issued stock for cash</i> | ✓ 25,000 25,000 | 25,000 |
| Jan. 4 | Advertising Expense Cash <i>Paid advertising expense</i> | 2,000 ✓ 2,000 | 2,000 |
| Jan. 8 | Cash Service Revenue <i>Provided services for cash</i> | ✓ 4,000 4,000 | 4,000 |
| Jan. 15 | Utility Expense Accounts Payable <i>Received utility bill</i> | 1,000 1,000 | 1,000 |
| Jan. 27 | Accounts Receivable Service Revenue <i>Provided services on account</i> | 8,000 8,000 | 8,000 |
| Jan. 18 | Accounts Payable Cash <i>Paid account payable</i> | 500 ✓ 500 | 500 |

| GENERAL JOURNAL | | PAGE 2 | |
|-----------------|--|-----------------------------|--------|
| Jan. 25 | Cash Accounts Receivable <i>Collected cash on account</i> | ✓ 4,800 4,800 | 4,800 |
| Jan. 28 | Land Cash Notes Payable <i>Purchased land for cash and note</i> | 15,000 ✓ 5,000 10,000 | 15,000 |

| ACCOUNT: Cash | | | | |
|---------------|-----------------|-----------|----------|--|
| Date | Description | Debit | Credit | |
| Jan. 1, 20X3 | Balance forward | | | |
| Jan. 1, 20X3 | Journal Page 1 | \$ 25,000 | | |
| Jan. 4, 20X3 | Journal Page 1 | | \$ 2,000 | |
| Jan. 8, 20X3 | Journal Page 1 | | 4,000 | |
| Jan. 18, 20X3 | Journal Page 1 | | 4,800 | |
| Jan. 25, 20X3 | Journal Page 2 | 4,800 | | |
| Jan. 28, 20X3 | Journal Page 2 | | 5,000 | |

In reviewing this general ledger account for Cash, you will notice that the "description" column includes a cross-reference to the journal page where the transaction was initially recorded. This allows you to document the amount of detail that must be transferred.

In a manual accounting system, it is a good practice to "check-off" ✓ the items in the general journal as they are posted to the ledger. One would simply make a checkmark beside each line item in the journal as it is posted to the ledger. Otherwise, it is very easy to forget to post an item to the ledger. (This checking-off is similar to what you probably are accustomed to doing in your own checkbook when you reconcile your monthly bank statement.)

Below are all of the ledger pages for Xao that would result after posting all of the journal entries:

| ACCOUNT: Cash | | | | |
|---------------|-----------------|-----------|----------|---------|
| Date | Description | Debit | Credit | Balance |
| Jan. 1, 20X3 | Balance forward | | | \$ - |
| Jan. 1, 20X3 | Journal Page 1 | \$ 25,000 | | 25,000 |
| Jan. 4, 20X3 | Journal Page 1 | | \$ 2,000 | 23,000 |
| Jan. 8, 20X3 | Journal Page 1 | 4,000 | | 27,000 |
| Jan. 18, 20X3 | Journal Page 1 | | 500 | 26,500 |
| Jan. 25, 20X3 | Journal Page 2 | 4,800 | | 31,300 |
| Jan. 28, 20X3 | Journal Page 2 | | 5,000 | 26,300 |

| ACCOUNT: Notes Payable | |
|------------------------|-----------------|
| Date | Description |
| Jan. 1, 20X3 | Balance forward |
| Jan. 28, 20X3 | Journal Page 2 |

| ACCOUNT: Capital Stock | |
|------------------------|-----------------|
| Date | Description |
| Jan. 1, 20X3 | Balance forward |
| Jan. 1, 20X3 | Journal Page 1 |

| ACCOUNT: Accounts Receivable | | | | |
|------------------------------|-----------------|----------|----------|---------|
| Date | Description | Debit | Credit | Balance |
| Jan. 1, 20X3 | Balance forward | | | \$ - |
| Jan. 17, 20X3 | Journal Page 1 | \$ 8,000 | | 8,000 |
| Jan. 25, 20X3 | Journal Page 2 | | \$ 4,800 | 3,200 |

| ACCOUNT: Service Revenue | |
|--------------------------|-----------------|
| Date | Description |
| Jan. 1, 20X3 | Balance forward |
| Jan. 8, 20X3 | Journal Page 1 |
| Jan. 17, 20X3 | Journal Page 1 |

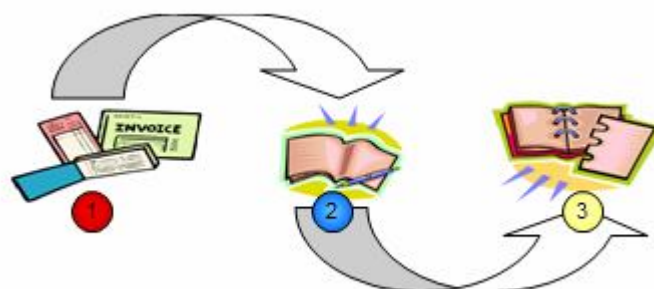
| ACCOUNT: Land | | | | |
|---------------|-----------------|-----------|--------|---------|
| Date | Description | Debit | Credit | Balance |
| Jan. 1, 20X3 | Balance forward | | | \$ - |
| Jan. 28, 20X3 | Journal Page 2 | \$ 15,000 | | 15,000 |

| ACCOUNT: Advertising Expense | |
|------------------------------|-----------------|
| Date | Description |
| Jan. 1, 20X3 | Balance forward |
| Jan. 4, 20X3 | Journal Page 1 |

| ACCOUNT: Accounts Payable | | | | |
|---------------------------|-----------------|--------|----------|---------|
| Date | Description | Debit | Credit | Balance |
| Jan. 1, 20X3 | Balance forward | | | \$ - |
| Jan. 15, 20X3 | Journal Page 1 | | \$ 1,000 | 1,000 |
| Jan. 18, 20X3 | Journal Page 1 | \$ 500 | | 500 |

| ACCOUNT: Utilities Expense | |
|----------------------------|-----------------|
| Date | Description |
| Jan. 1, 20X3 | Balance forward |
| Jan. 15, 20X3 | Journal Page 1 |

TO REVIEW: Thus far you should have grasped the following accounting "steps":



XAO CORPORATION
Trial Balance
January 31, 20X3

| | <u>Debits</u> | <u>Credits</u> |
|---------------------|------------------|------------------|
| Cash | \$ 26,300 | |
| Accounts receivable | 3,200 | |
| Land | 15,000 | |
| Accounts payable | | \$ 500 |
| Notes payable | | 10,000 |
| Capital stock | | 25,000 |
| Service revenue | | 12,000 |
| Advertising expense | 2,000 | |
| Utility expense | 1,000 | - |
| | <u>\$ 47,500</u> | <u>\$ 47,500</u> |

- STEP 1: Each transaction is analyzed to determine the accounts involved
- STEP 2: A journal entry is entered into the general journal for each transaction
- STEP 3: Periodically, the journal entries are posted to the appropriate general ledger pages

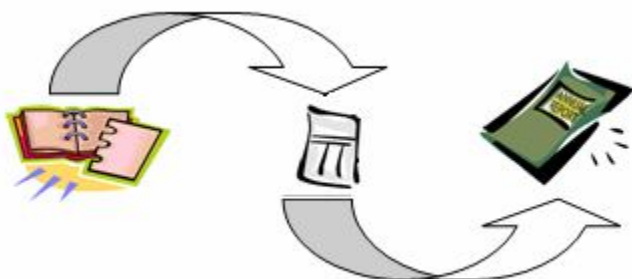
THE TRIAL BALANCE

TRIAL BALANCE: After all transactions have been posted from the journal to the ledger, it is a good practice to prepare a **trial balance**. A trial balance is simply a listing of the ledger accounts along with their respective

debit or credit balances. The trial balance is not a formal financial statement, but rather a self-check to determine that debits equal credits. At right is the trial balance prepared from the general ledger of Xao Corporation.

DEBITS EQUAL CREDITS: Since each transaction was journalized in a way that insured that debits equaled credits, one would expect that this equality would be maintained throughout the ledger and trial balance. If the trial balance fails to balance, an error has occurred and must be located. It is much better to be careful as you go, rather than having to go back and locate an error after the fact. You should also be aware that a "balanced" trial balance is no guarantee of correctness. For example, failing to record a transaction, recording the same transaction twice, or posting an amount to the wrong account would produce a balanced (but incorrect) trial balance.

FINANCIAL STATEMENTS FROM THE TRIAL BALANCE: In the next chapter you will learn about additional adjustments that may be needed to prepare a truly correct and up-to-date set of financial statements. But, for now, you can probably see that a tentative set of financial statements could be prepared based on the trial balance. The basic process is to transfer amounts from the *general ledger* to the *trial balance*, then into the *financial statements*:



In reviewing the following financial statements for Xao, notice that *blue italics* were used to draw attention to the items taken directly from the trial balance above. The other line items and amounts simply relate to totals and derived amounts within the statements. These statements would appear as follows:



| XAO CORPORATION Income Statement For the Month ending January 31, 20X3 | | |
|--|--------------|------------------------|
| Revenues | | |
| <i>Services to customers</i> | | \$ 12,000 |
| Expenses | | |
| <i>Advertising</i> | \$ 2,000 | |
| <i>Utilities</i> | <u>1,000</u> | <u>3,000</u> |
| Net income | | <u><u>\$ 9,000</u></u> |

| XAO CORPORATION Statement of Retained Earnings For the Month ending January 31, 20X3 | |
|--|------------------------|
| Beginning retained earnings | \$ - |
| Plus: Net income | <u>9,000</u> |
| | \$ 9,000 |
| Less: Dividends | <u>-</u> |
| Ending retained earnings | <u><u>\$ 9,000</u></u> |

| XAO CORPORATION Balance Sheet January 31, 20X3 | |
|--|---------------|
| Assets | |
| <i>Cash</i> | |
| <i>Accounts receivable</i> | |
| <i>Land</i> | |
| Total assets | |
| Liabilities | |
| <i>Accounts payable</i> | \$ 5,000 |
| <i>Notes payable</i> | <u>10,000</u> |
| Total liabilities | |
| Stockholders' equity | |
| <i>Capital stock</i> | \$ 25,000 |
| Retained earnings | <u>9,000</u> |
| Total stockholders' equity | |
| Total Liabilities and equity | |

COMPUTERIZED PROCESSING SYSTEMS

ACCOUNTING SOFTWARE: You probably noticed that much of the material in this chapter involves rather mundane processing. Once the initial journal entry is prepared, the data are merely being manipulated to produce the ledger, trial balance, and financial statements. No wonder, then, that some of the first business applications that were computerized many years ago related to transaction processing. In short, the only "analytics" relate to the initial transaction recordation. All of the subsequent steps are merely mechanical, and are aptly suited to computerization.

HOW MUCH DOES IT COST: Many companies produce accounting software. These packages range from the simple to the complex. Some basic products for a small business may be purchased for under \$100. In large organizations, millions may be spent hiring consultants to install large enterprise-wide packages. Recently, some software companies have even offered accounting systems maintained on their own network, with the customers utilizing the internet to enter data and produce their reports.

WHAT DO THEY LOOK LIKE: As you might expect, the look, feel, and function of software-based packages varies significantly. Each company's product must be studied to understand its unique attributes. But, in general, accounting software packages:

- Attempt to simplify and automate data entry (e.g., a point-of-sale terminal may actually become a data entry device so that sales are automatically "booked" into the accounting system as they occur).
- Frequently divide the accounting process into modules related to functional areas such as sales/collection, purchasing/payment, and others.
- Attempt to be "user-friendly" by providing data entry blanks that are easily understood in relation to the underlying transactions.
- Attempt to minimize key-strokes by using "pick lists," automatic call-up functions, and auto-complete type technology.
- Are built on data-base logic, allowing transaction data to be sorted and processed based on any query structure (e.g., produce an income statement for July, provide a listing of sales to Customer Smith, etc.)
- Provide up-to-date data that may be accessed by key business decision makers.
- Are capable of producing numerous specialized reports in addition to the key financial statements.

Following is a very typical data entry screen. It should look quite familiar. After the data are input, the subsequent processing (posting, etc.) is totally automated.

The screenshot shows a data entry interface with a yellow header bar containing icons for file operations (document, folder, question mark) and a trash can. Below the header is a table with two columns: 'Debits' and 'Credits'. The table contains the following entries:

| | Debits | Credits |
|-----------------------|------------|------------|
| 502 Utilities Expense | \$1,000.00 | |
| 201 Accounts Payable | | \$1,000.00 |
| | | |
| | \$1,000.00 | \$1,000.00 |

At the bottom left, there is a text field containing 'Record entry #756' and a circular arrow icon. At the bottom right, a yellow box displays 'Entry in balance' with a red checkmark.

Despite each product's own look and feel, the persons primarily responsible for the maintenance and operation of the accounting function must still understand accounting basics such as those introduced in this chapter: accounts, debits and credits, journal entries, etc. Without that intrinsic knowledge, the data input decisions will quickly go astray, and the output of the computerized accounting system will become hopelessly trashed. So, while it is safe to assume that you will probably be working in a computerized accounting environment, it is equally true to say that you should first come to understand the basic processing described in this and subsequent chapters. These principles will clearly guide you toward successful implementation and use of most any computerized accounting product, and the reports they produce.

T-ACCOUNTS

| CASH | |
|--------|-------|
| 25,000 | 2,000 |
| 4,000 | 500 |
| 4,800 | 5,000 |
| 33,800 | 7,500 |
| 26,300 | |

events

| ACCOUNT: Cash | | | | | |
|---------------|-----------------|-----------|----------|---------|--------|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20X3 | Balance forward | | | \$ | - |
| Jan. 1, 20X3 | Journal Page 1 | \$ 25,000 | | | 25,000 |
| Jan. 4, 20X3 | Journal Page 1 | | \$ 2,000 | | 23,000 |
| Jan. 8, 20X3 | Journal Page 1 | 4,000 | | | 27,000 |
| Jan. 18, 20X3 | Journal Page 1 | | 500 | | 26,500 |
| Jan. 25, 20X3 | Journal Page 2 | 4,800 | | | 31,300 |
| Jan. 28, 20X3 | Journal Page 2 | | 5,000 | | 26,300 |
| | | | | | |
| | | | | | |

T-ACCOUNTS: A useful tool for demonstrating certain transactions and is the "t-account."

Importantly, one

would not use t-accounts for actually maintaining the accounts of a business. Instead, they are just a quick and simple way to figure out how a small number of transactions and events will impact a company. T-accounts would quickly become unwieldy in an enlarged business setting. In essence, t-accounts are just a "scratch pad" for account analysis. They are useful communication devices to discuss, illustrate, and think about the impact of transactions. The physical shape of a t-account is a "T," and debits are on the left and credits on the right. The "balance" is the amount by which debits exceed credits (or vice versa). At right is the t-account for Cash for the transactions and events of Xao Corporation. Carefully compare this t-account to the actual running balance ledger account which is also shown (notice that the debits in black total to \$33,800, the credits in red total to \$7,500, and the excess of debits over credits is \$26,300 -- which is the resulting account balance shown in blue).

COMPREHENSIVE T-ACCOUNT ILLUSTRATION: This link jumps to an [animation](#) of the process for preparing t-accounts and a trial balance. The animation is summarized by the following diagram illustrating the flow of transactions from a general journal to a set of t-accounts. It may look rather "busy" but it is actually quite simple. The debits/credits for each entry can be traced to the corresponding accounts. Once all of the entries are transferred, the resulting balances for each account can be carried forward to form the trial balance.

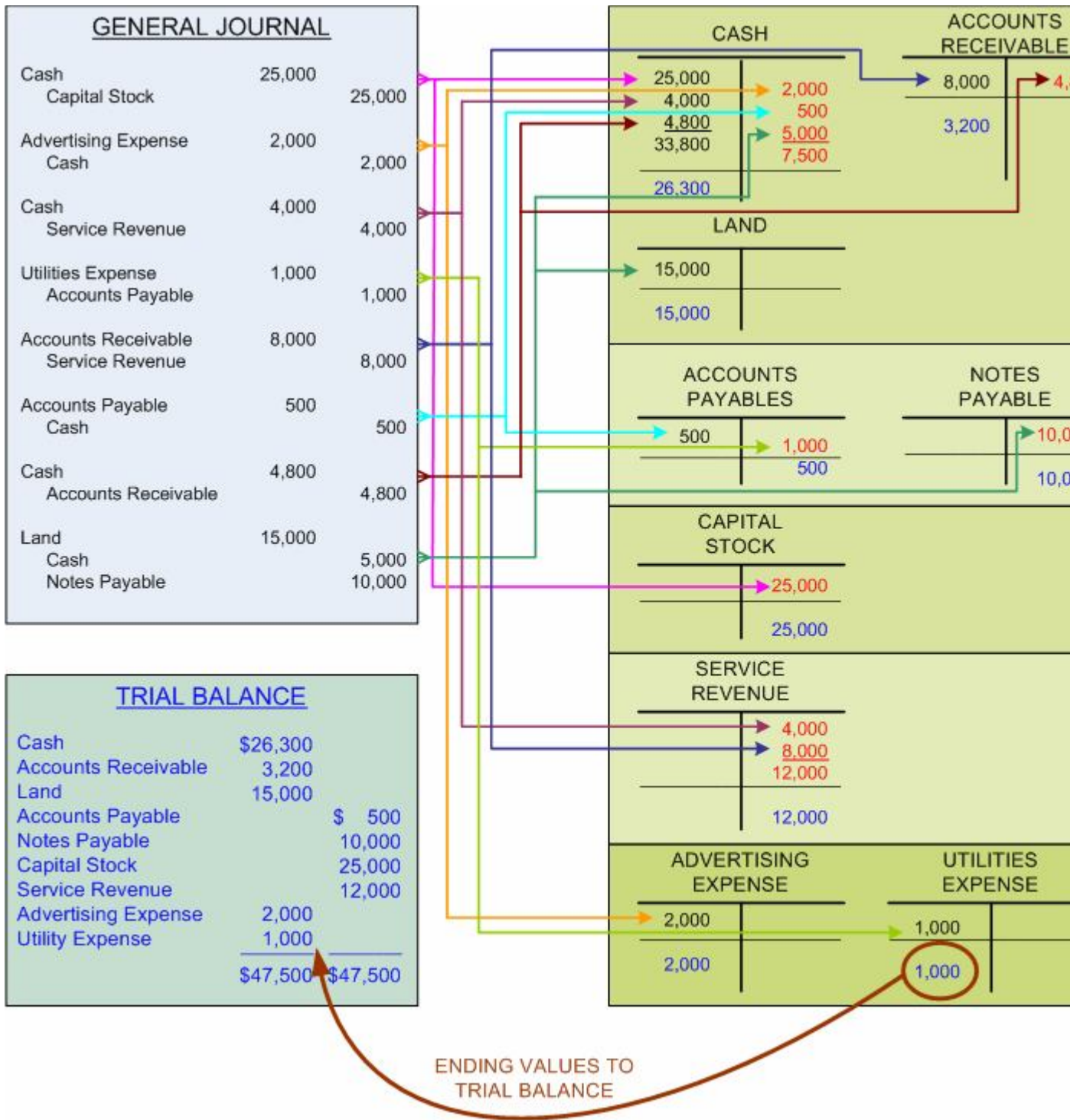


CHART OF ACCOUNTS: A listing of all accounts in use by a particular company is called the **chart of accounts**. Individual accounts are often given a specific reference number. The numbering scheme helps keep up with the accounts in use, and helps in the classification of accounts. For example, all assets may begin with "1" (e.g., 101 for Cash, 102 for Accounts Receivable, etc.), liabilities with "2," and so forth. A simple chart of accounts for Xao Corporation might appear as follows:

- No. 101 Cash
- No. 102 Accounts Receivable
- No. 103 Land
- No. 201 Accounts Payable
- No. 202 Notes Payable
- No. 301 Capital Stock
- No. 401 Service Revenue
- No. 501 Advertising Expense
- No. 502 Utilities Expense

The assignment of a numerical account number to each account assists in data management, in much the same way as zip codes help move mail more efficiently. Many computerized systems allow rapid entry of accounts by reference number rather than by entering a full account description.

CONTROL AND SUBSIDIARY ACCOUNTS: Some general ledger accounts are made of many sub-components. For instance, a company may have total accounts receivable of \$19,000, consisting of amounts due from Compton, Fisher, and Moore. The accounting system must be sufficient to reveal the total receivables, as well as amounts due from each customer. Therefore, sub-accounts are used. For instance, in addition to the regular general ledger account, separate auxiliary receivable accounts would be maintained for each customer, as shown in the following illustration:

ACCOUNTS RECEIVABLE: CONTROL LEDGER

| ACCOUNT: Accounts Receivable | | | | |
|------------------------------|--------------------------|----------|-----------|-----------|
| Date | Description | Debit | Credit | Balance |
| Jan. 1, 20X5 | Balance forward | | | \$ 30,000 |
| Jan. 11, 20X5 | Journal Page 1/Compton | \$ 6,000 | | 36,000 |
| Jan. 12, 20X5 | Journal Page 1/Fisher | | \$ 11,000 | 25,000 |
| Jan. 24, 20X5 | Journal Page 2/Sunderman | | 8,000 | 17,000 |
| Jan. 30, 20X5 | Journal Page 2/Moore | 2,000 | | 19,000 |
| | | | | |
| | | | | |
| | | | | |

ACCOUNTS RECEIVABLE: S

| ACCOUNT: Compton | |
|------------------|-----------------|
| Date | Description |
| Jan. 1, 20X5 | Balance forward |
| Jan. 11, 20X5 | Journal Page 1 |

| ACCOUNT: Fisher | |
|-----------------|-----------------|
| Date | Description |
| Jan. 1, 20X5 | Balance forward |
| Jan. 12, 20X5 | Journal Page 1 |

| ACCOUNT: Sunderman | |
|--------------------|-----------------|
| Date | Description |
| Jan. 1, 20X5 | Balance forward |
| Jan. 24, 20X5 | Journal Page 2 |

| ACCOUNT: Moore | |
|----------------|-----------------|
| Date | Description |
| Jan. 1, 20X5 | Balance forward |
| Jan. 30, 20X5 | Journal Page 2 |

ENDING BALANCES MUST AGREE

BEGINNING BALANCES MUST AGREE

The total receivables are the sum of all the individual receivable amounts. Thus, the Accounts Receivable general ledger account *total* is said to be the "control account" or control ledger, as it represents the total of all individual "subsidiary account" balances.

The company's chart of accounts will likely be based upon some convention such that each subsidiary account is a sequence number within the broader chart of accounts. For instance, if Accounts Receivable bears the account number 102, you would expect to find that individual customers might be numbered as 102.001, 102.002, 102.003, etc. It is simply imperative that a company be able to reconcile subsidiary accounts to the broader control account that is found in the general ledger. Here, computers can be particularly helpful in maintaining the detailed and aggregated data in perfect harmony.



chapter 3

Income Measurement

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "income measurement" chapter are to learn about:

- ["Measurement triggering" transactions and events.](#)
- [The periodicity assumption and its accounting implications.](#)
- [Basic elements of revenue recognition.](#)
- [Basic elements of expense recognition.](#)
- [The adjusting process and related entries.](#)
- [Accrual- versus cash-basis accounting.](#)

DISCUSSION

"MEASUREMENT TRIGGERING" TRANSACTIONS AND EVENTS

THE MEANING OF "ECONOMIC" INCOME: Economists often refer to income as a measure of "better-offness." In other words, economic income represents an increase in the command over goods and services. Such notions of income capture a business's operating successes, as well as good fortune from holding assets that may increase in value.

THE MEANING OF "ACCOUNTING" INCOME: Accounting does not attempt to measure all value changes (e.g., land is recorded at its purchase price and that historical cost amount is maintained in the balance sheet, even though market value may increase over time -- this is called the "historical cost" principle). Whether and when accounting should measure changes in value has long been a source of debate among accountants. Many justify historical cost measurements because they are objective and verifiable. Others submit that market values, however imprecise, may be more relevant for decision-making purposes. Suffice it to say that this is a long-running debate, and specific accounting rules are mixed. For example, although land is measured at historical cost, investment securities are apt to be reported at market value. There are literally hundreds of specific accounting rules that establish measurement principles; the more you study accounting, the more you will learn about these rules and their underlying rationale.



For introductory purposes, it is necessary to simplify and generalize: thus, accounting (a) measurements tend to be based on historical cost determined by reference to an exchange

transaction with another party (such as a purchase or sale) and (b) income represents "revenues" minus "expenses" as determined by reference to those "transactions or events."

MORE INCOME TERMINOLOGY: At the risk of introducing too much too soon, the following definitions may prove helpful:

- Revenues -- Inflows and enhancements from delivery of goods and services that constitute central ongoing operations
- Expenses -- Outflows and obligations arising from the production of goods and services that constitute central ongoing operations
- Gains -- Like revenues, but arising from peripheral transactions and events
- Losses -- Like expenses, but arising from peripheral transactions and events

Thus, it may be more precisely said that income is equal to Revenues + Gains - Expenses - Losses. You should not worry too much about these details for now, but do take note that revenue is not synonymous with income. And, there is a subtle distinction between revenues and gains (and expenses and losses).

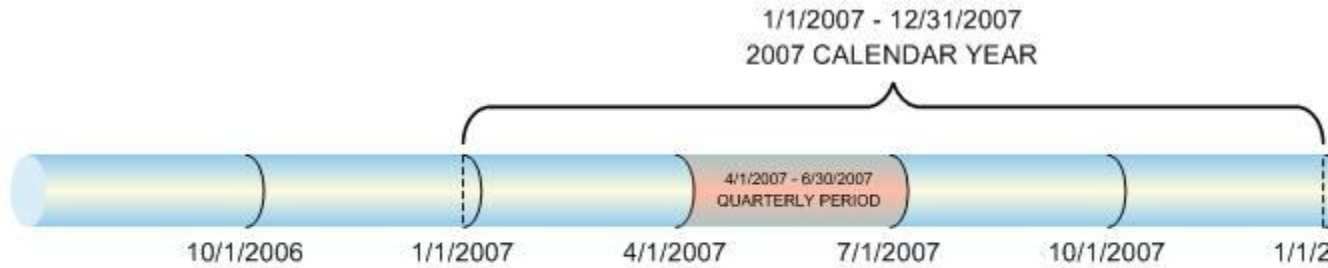


AN EMPHASIS ON TRANSACTIONS AND EVENTS: Although accounting income will typically focus on recording transactions and events that are exchange based, you should note that some items must be recorded even though there is not an identifiable exchange between the company and some external party. Can you think of any nonexchange events that logically should be recorded to prepare correct financial statements? How about the loss of an uninsured building from fire or storm? Clearly, the asset is gone, so it logically should be removed from the accounting records. This would be recorded as an immediate loss. Even more challenging for you may be to consider the journal entry: debit a loss (losses are increased with debits since they are like expenses), and credit the asset account (the asset is gone and is reduced with a credit).

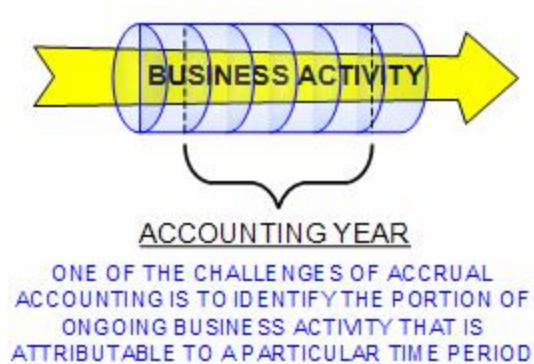
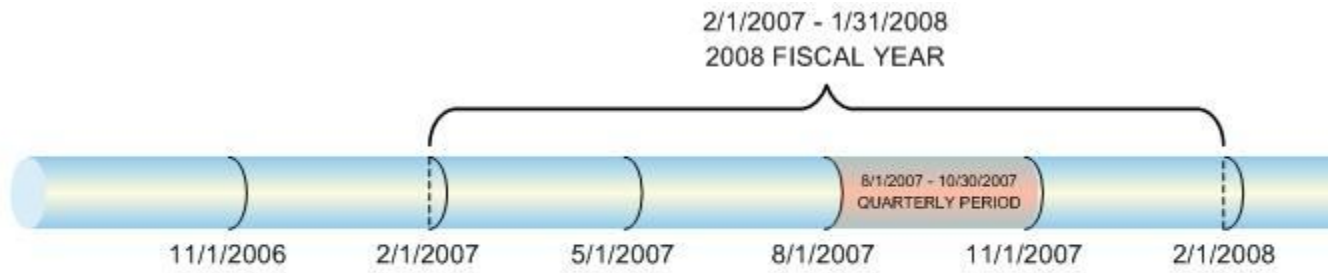
THE PERIODICITY ASSUMPTION

THE PERIODICITY ASSUMPTION: Business activity is fluid. Revenue and expense generating activities are in constant motion. Just because it is time to turn a page on a calendar does not mean that all business activity ceases. But, for purposes of measuring performance, it is necessary to "draw a line in the sand of time." A **periodicity assumption** is made that business activity can be divided into measurement intervals, such as months, quarters, and years.

ACCOUNTING IMPLICATIONS: Accounting must divide the continuous business process, and produce periodic reports. An annual reporting period may follow the calendar year by running from January 1 through December 31. Annual periods are usually further divided into quarterly periods containing activity for three months.



In the alternative, a **fiscal year** may be adopted, running from any point of beginning to one year later. Fiscal years often attempt to follow **natural business year** cycles, such as in the retail business where a fiscal year may end on January 31 (allowing all of the Christmas rush, and corresponding returns, to cycle through). Note in the following illustration that the "2008 Fiscal Year" is so named because it ends in 2008:



You should also consider that internal reports may be prepared on even more frequent monthly intervals. As a general rule, the more narrowly defined a reporting period, the more challenging it becomes to capture and measure business activity. This results because continuous business activity must be divided and apportioned among periods; the more periods, the more likely that "ongoing" transactions must be allocated to more than one reporting period. Once a measurement period is adopted, the accountant's task is to apply the various rules and procedures of generally accepted accounting principles (GAAP) to assign

revenues and expenses to the reporting period. This process is called "**accrual basis**" accounting -- accrue means to come about as a natural growth or increase -- thus, accrual basis accounting is reflective of measuring revenues as earned and expenses as incurred.

The importance of correctly assigning revenues and expenses to time periods is pivotal in the determination of income. It probably goes without saying that reported income is of great concern to investors and creditors, and its proper determination is crucial. These measurement issues can become highly complex. For example, if a software company sells a product for \$25,000 (in year 20X1), and agrees to provide updates at no cost to the customer for 20X2 and 20X3, then how much revenue is "earned" in 20X1, 20X2, and 20X3? Such questions are vexing, and they

make accounting far more challenging than most realize. At this point, suffice it to say that we would need more information about the software company to answer their specific question. But, there are several basic rules about revenue and expense recognition that you should understand, and they will be introduced in the following sections.

Before moving away from the periodicity assumption, and its accounting implications, there is one important factor for you to note. If accounting did not require periodic measurement, and instead, took the view that we could report only at the end of a process, measurement would be easy. For example, if the software company were to report income for the three-year period 20X1 through 20X3, then revenue of \$25,000 would be easy to measure. It is the periodicity assumption that muddies the water. Why not just wait? Two reasons: first, you might wait a long time for activities to close and become measurable with certainty, and second, investors cannot wait long periods of time before learning how a business is doing. Timeliness of data is critical to its relevance for decision making. Therefore, procedures and assumptions are needed to produce timely data, and that is why the periodicity assumption is put in play.

BASIC ELEMENTS OF REVENUE RECOGNITION

REVENUE RECOGNITION: To *recognize* an item is to record the item into the accounting records. **Revenue recognition** normally occurs at the time services are rendered or when goods are sold and delivered to a customer. The basic conditions of revenue recognition are to look for both (a) an exchange transaction, and (b) the earnings process being complete.



For a manufactured product, should revenue be recognized when the item rolls off of the assembly line? The answer is no! Although production may be complete, the product has not been sold in an exchange transaction. Both conditions must be met. In the alternative, if a customer ordered a product that was to be produced, would revenue be recognized at the time of the order? Again, the answer is no! For revenue to be recognized, the product must be manufactured and delivered.

Modern business transactions frequently involve complex terms, bundled items (e.g., a cell phone with a service contract), intangibles (e.g. a software user license), order routing (e.g., an online retailer may route an order to the manufacturer for direct shipment), and so forth. It is no wonder that many “accounting failures” involve misapplication of revenue recognition concepts. The USA Securities and Exchange Commission has additional guidance, noting that revenue recognition would normally be appropriate only when there is persuasive evidence of an arrangement, delivery has occurred (or services rendered), the seller’s price is fixed or determinable, and collectibility is reasonably assured.

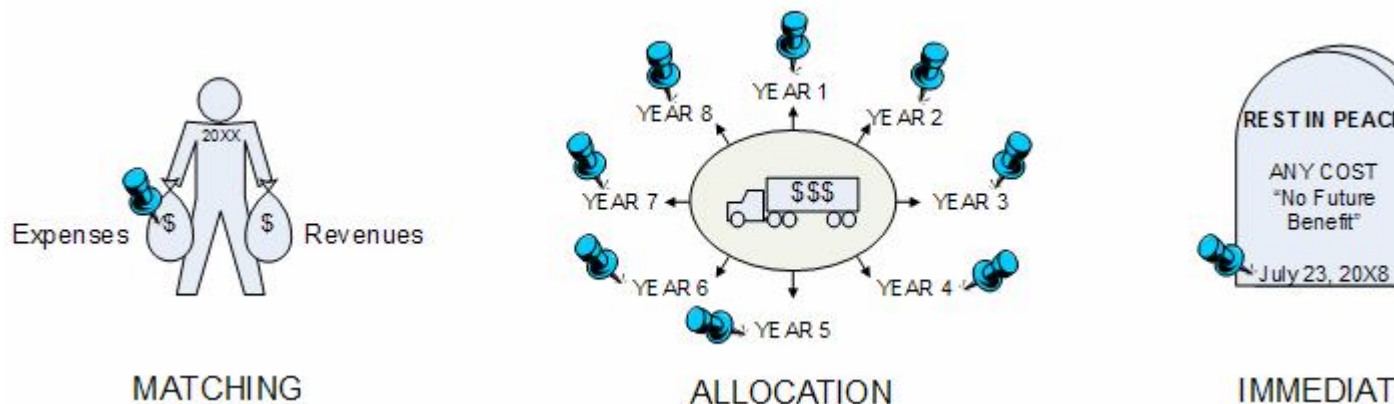
PAYMENT AND REVENUE RECOGNITION: It is important to note that receiving payment is not a criterion for initial revenue recognition. Revenues are recognized at the point of sale, whether that sale is for cash or a receivable. Recall the earlier definition of revenue (inflows and enhancements from delivery of goods and services), noting that it contemplates something more than simply reflecting cash receipts. Also recall the study of journal entries from Chapter 2; specifically, you learned to record revenues on account. Much business activity is conducted on

credit, and severe misrepresentations of income could result if the focus was simply on cash receipts. To be sure, if collection of a sale was in doubt, allowances would be made in the accounting records. When you study the chapter on accounts receivable you will see how to deal with these issues.

BASIC ELEMENTS OF EXPENSE RECOGNITION

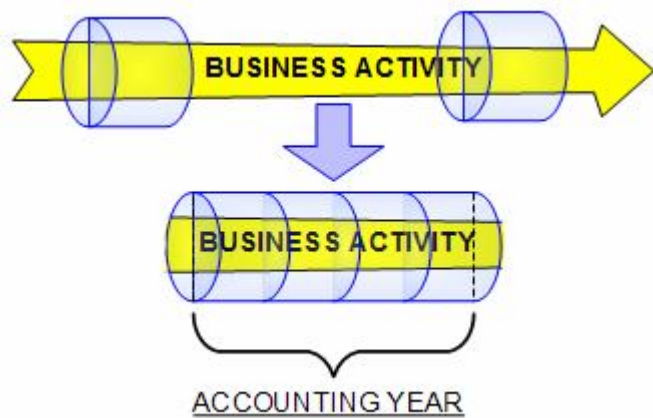
EXPENSE RECOGNITION: Expense recognition will typically follow one of three approaches, depending on the nature of the cost:

- *Associating cause and effect:* Many costs can be directly linked to the revenue they help produce. For example, a sales commission owed to an employee is directly based on the amount of a sale. Therefore, the commission expense should be recorded in the same accounting period as the sale. Likewise, the cost of inventory delivered to a customer should be expensed when the sale is recognized. This is what is meant by "associating cause and effect," and is most often referred to as the **matching principle**.
- *Systematic and rational allocation:* In the absence of a clear link between a cost and revenue item, other expense recognition schemes must be employed. Some costs benefit many periods. Stated differently, these costs "expire" over time. For example, a truck may last many years; determining how much cost is attributable to a particular year is difficult. In such cases, accountants may use a systematic and rational allocation scheme to spread a portion of the total cost to each period of use (in the case of a truck, through a process known as depreciation).
- *Immediate recognition:* Last, some costs cannot be linked to any production of revenue, and do not benefit future periods either. These costs are recognized immediately. An example would be severance pay to a fired employee, which would be expensed when the employee is terminated.



PAYMENT AND EXPENSE RECOGNITION: It is important to note that making payment is not a criterion for initial expense recognition. Expenses are based on one of the three approaches just described, no matter when payment of the cost occurs. Recall the earlier definition of expense (outflows and obligations arising from the production of goods and services), noting that it contemplates something more than simply making a cash payment.

THE ADJUSTING PROCESS AND RELATED ENTRIES



ADJUSTMENTS TO PREPARE FINANCIAL STATEMENTS:

In the previous chapter, you saw how tentative financial statements could be prepared directly from a trial balance. However, you were also cautioned about "adjustments that may be needed to prepare a truly correct and up-to-date set of financial statements." This occurs because:

- **MULTI-PERIOD ITEMS:** Some revenue and expense items may relate to more than one accounting period, or
- **ACCRUED ITEMS:** Some revenue and expense items have been earned or incurred in a given period, but not yet entered into the accounts (commonly called accruals).

In other words, the ongoing business activity brings about changes in economic circumstance that have not been captured by a journal entry. In essence, time brings about change, and an **adjusting process** is needed to cause the accounts to appropriately reflect those changes. These adjustments typically occur at the end of each accounting period, and are akin to temporarily cutting off the flow through the business pipeline to take a measurement of what is in the pipeline -- consistent with the revenue and expense recognition rules described in the preceding portion of this chapter.

There is simply no way to catalog every potential adjustment that a business may need to make. What is required is firm understanding of a particular business's operations, along with a good handle on accounting measurement principles. The following discussion will describe "typical adjustments" that one would likely encounter. You should strive to develop a conceptual understanding based on these examples. Your critical thinking skills will then allow you to extend these basic principles to most any situation you are apt to encounter. Specifically, the examples will relate to:

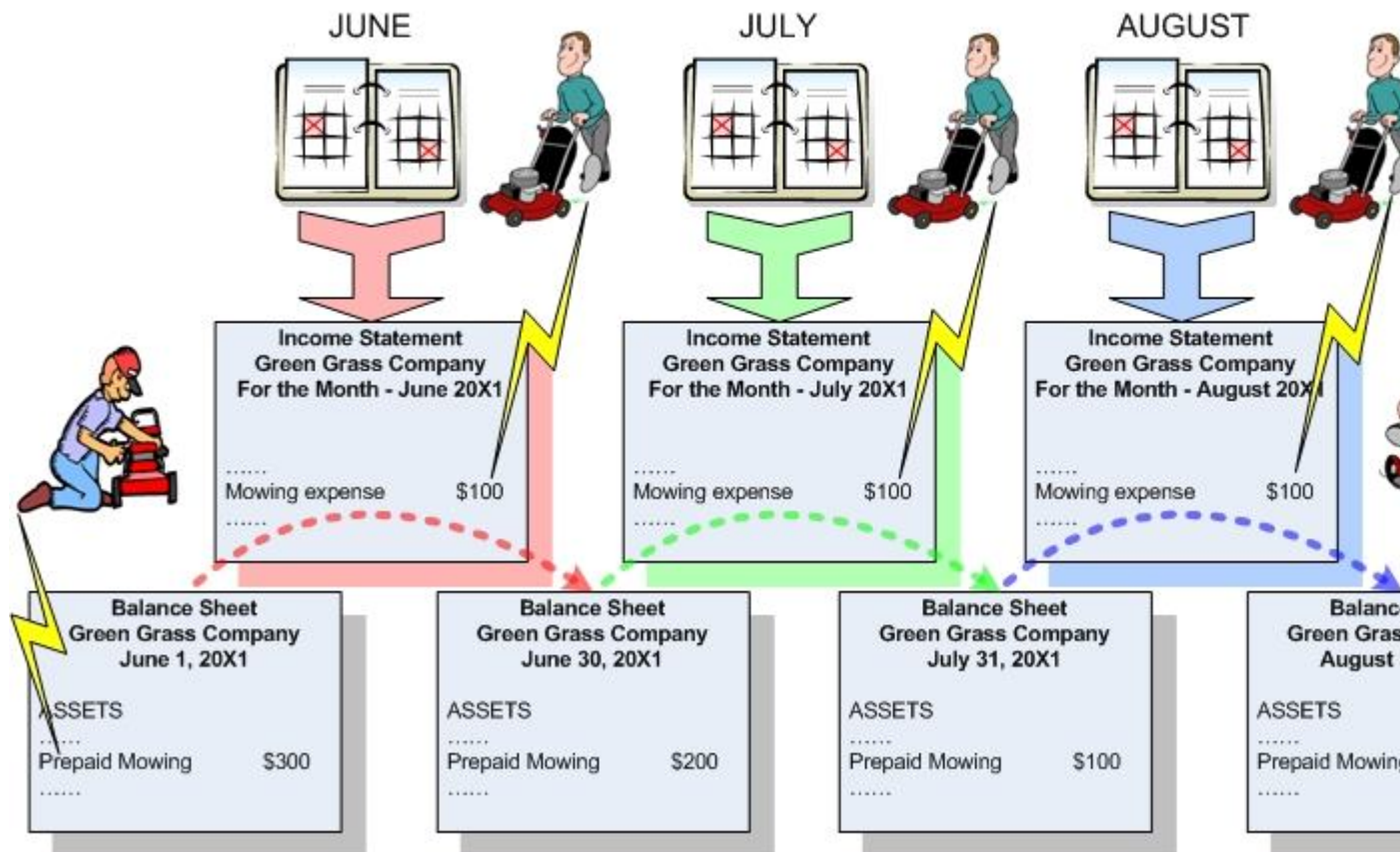
| <u>MULTI-PERIOD ITEMS</u> | <u>ACCRUED ITEMS</u> |
|----------------------------------|-----------------------------|
| <u>Prepaid Expenses:</u> | <u>Unrecorded Expenses:</u> |
| <u>Prepaid Insurance</u> | <u>Accrued Salaries</u> |
| <u>Prepaid Rent</u> | <u>Accrued Interest</u> |
| <u>Supplies</u> | <u>Accrued Rent</u> |
| <u>Depreciation</u> | <u>Unrecorded Revenues:</u> |
| <u>Unearned Revenue</u> | <u>Accrued Revenue</u> |

PREPAID EXPENSES: It is quite common to pay for goods and services in advance. You have probably purchased insurance this way, perhaps prepaying for an annual or semi-annual policy. Or, rent on a building may be paid ahead of its intended use (e.g., most landlords require monthly rent to be paid at the beginning of each month). Another example of **prepaid expense** relates to supplies that are purchased and stored in advance of actually needing them.

At the time of purchase, such prepaid amounts represent future economic benefits that are acquired in exchange for cash payments. As such, the initial expenditure gives rise to an asset. As time passes, the asset is diminished. This means that adjustments are needed to reduce the asset account and transfer the consumption of the asset's cost to an appropriate expense account.

As a general representation of this process, assume that you prepay \$300 on June 1 for three months of lawn mowing service. As shown in the following illustration, this transaction initially gives rise to a \$300 asset on the June 1 balance sheet. As each month passes, \$100 is removed from the balance sheet account and transferred to expense (think: an asset is reduced and expense is increased, giving rise to lower income and equity -- and leaving the balance sheet in balance):

\$300 is paid in advance on June 1 for three months of lawn mowing service



Examine the journal entries for this cutting-edge illustration, and take note of the impact on the balance sheet account for Prepaid Mowing (as shown by the T-accounts at right):

| | | | |
|--------|---|-----|-----|
| June 1 | Prepaid Mowing | 300 | |
| | Cash | | 300 |
| | <i>To record prepayment of mowing service</i> | | |

| | |
|----------------|--|
| Prepaid Mowing | |
| 300 | |

| | | | |
|---------|--|-----|-----|
| June 30 | Mowing Expense | 100 | |
| | Prepaid Mowing | | 100 |
| | <i>To record mowing service for June</i> | | |

| | |
|----------------|-----|
| Prepaid Mowing | |
| 300 | 100 |

| | | | |
|---------|--|-----|-----|
| July 31 | Mowing Expense | 100 | |
| | Prepaid Mowing | | 100 |
| | <i>To record mowing service for July</i> | | |


| | |
|----------------|-----|
| Prepaid Mowing | |
| 300 | 200 |

| | | | |
|---------|--|-----|-----|
| Aug. 31 | Mowing Expense | 100 | |
| | Prepaid Mowing | | 100 |
| | <i>To record mowing service for August</i> | | |

| | |
|----------------|-----|
| Prepaid Mowing | |
| 300 | 300 |

Now that you have a general sense of the process of accounting for prepaid items, let's take a closer look at some specific illustrations.

ILLUSTRATION OF PREPAID INSURANCE: Insurance policies are usually purchased in advance. You probably know this from your experience with automobile coverage. Cash is paid up front to cover a future period of protection. Assume a three-year insurance policy was purchased on January 1, 20X1, for \$9,000. The following entry would be needed to record the transaction on January 1:

| | | | |
|---|-------------------|-------|-------|
|  | Prepaid Insurance | 9,000 | |
| | | | |
| 1-1-X1 | Cash | | 9,000 |



Prepaid a three-year insurance policy for cash

By December 31, 20X1, \$3,000 of insurance coverage would have expired (one of three years, or 1/3 of the \$9,000). Therefore, an adjusting entry to record expense and reduce prepaid insurance would be needed by the end of the year:

| | | | |
|----------|---|-------|-------|
| 12-31-X1 | <u>Insurance Expense</u> | 3,000 | |
| | <u>Prepaid Insurance</u> | | 3,000 |
| | <i>To adjust prepaid insurance to reflect portion expired (\$9,000/3 = \$3,000)</i> | | |

As a result of the above entry and adjusting entry, the income statement for 20X1 would report insurance expense of \$3,000, and the balance sheet at the end of 20X1 would report prepaid insurance of \$6,000 (\$9,000 debit less \$3,000 credit). The remaining \$6,000 amount would be transferred to expense over the next two years by preparing similar adjusting entries at the end of 20X2 and 20X3.

ILLUSTRATION OF PREPAID RENT: Assume a two-month lease is entered and rent paid in advance on March 1, 20X1, for \$3,000. The following entry would be needed to record the transaction on March 1:

| | | | |
|--------|----------------------------------|-------|-------|
| 3-1-X1 | <u>Prepaid Rent</u> | 3,000 | |
| | <u>Cash</u> | | 3,000 |
| | <i>Prepaid a two-month lease</i> | | |

By March 31, 20X1, half of the rental period has lapsed. If financial statements were to be prepared at the end of March, an adjusting entry to record rent expense and reduce prepaid rent would be needed on that financial statement date:

| | | | |
|---------|---|-------|-------|
| 3-31-X1 | <u>Rent Expense</u> | 1,500 | |
| | <u>Prepaid Rent</u> | | 1,500 |
| | <i>To adjust prepaid rent for portion lapsed (\$3,000/2 months = \$1,500)</i> | | |

As a result of the above entry and adjusting entry, the income statement for March would report rent expense of \$1,500, and the balance sheet at March 31, would report prepaid rent of \$1,500

(\$3,000 debit less \$1,500 credit). The remaining \$1,500 prepaid amount would be expensed in April.

I'M A BIT CONFUSED -- EXACTLY WHEN DO I ADJUST?: In the above illustration for insurance, the adjustment was applied at the end of December, but the rent adjustment occurred at the end of March. What's the difference? What was not stated in the first illustration was an assumption that financial statements were only being prepared at the end of the year, in which case the adjustments were only needed at that time. In the second illustration, it was explicitly stated that financial statements were to be prepared at the end of March, and that necessitated an end of March adjustment. There is a moral to this: adjustments should be made every time financial statements are prepared, and the goal of the adjustments is to correctly assign the appropriate amount of expense to the time period in question (leaving the remainder in a balance sheet account to carry over to the next time period(s)). Every situation will be somewhat unique, and careful analysis and thoughtful consideration must be brought to bear to determine the correct amount of adjustment.

To extend your understanding of this concept, return to the facts of the prepaid insurance illustration, but assume monthly financial statements were to be prepared. What adjusting entry would be needed each month? The answer is that every month would require an adjusting entry to remove (credit) an additional \$250 from prepaid insurance ($\$9,000/36$ months during the 3-year period = \$250 per month), and charge (i.e., debit) insurance expense. This would be done in lieu of the annual entry reflected above.

ILLUSTRATION OF SUPPLIES: The initial purchase of supplies is recorded by debiting Supplies and crediting Cash. Supplies Expense should subsequently be debited and Supplies should be credited for the amount used. This results in supplies expense on the income statement being equal to the amount of supplies used, while the remaining balance of supplies on hand is reported as an asset on the balance sheet. The following illustrates the purchase of \$900 of supplies. Subsequently, \$700 of this amount is used, leaving \$200 of supplies on hand in the Supplies account:

| | | | | | | | | | | | | | | |
|---|--|------------------|-----|----------|-----|---|--|---|------------------|-----|----------|-----|-----|-----|
| Dec. 8 | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Supplies</td> <td style="width: 50%; text-align: right;">900</td> </tr> <tr> <td style="padding-left: 20px;">Cash</td> <td style="text-align: right;">900</td> </tr> <tr> <td colspan="2" style="padding-left: 20px;"><i>To record purchase of supplies</i></td> </tr> </table> | Supplies | 900 | Cash | 900 | <i>To record purchase of supplies</i> | | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Supplies</td> </tr> <tr> <td style="text-align: center;">900</td> </tr> </table> | Supplies | 900 | | | | |
| Supplies | 900 | | | | | | | | | | | | | |
| Cash | 900 | | | | | | | | | | | | | |
| <i>To record purchase of supplies</i> | | | | | | | | | | | | | | |
| Supplies | | | | | | | | | | | | | | |
| 900 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Dec. 31 | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Supplies Expense</td> <td style="width: 50%; text-align: right;">700</td> </tr> <tr> <td style="padding-left: 20px;">Supplies</td> <td style="text-align: right;">700</td> </tr> <tr> <td colspan="2" style="padding-left: 20px;"><i>Adjusting entry to reflect supplies used</i></td> </tr> </table> | Supplies Expense | 700 | Supplies | 700 | <i>Adjusting entry to reflect supplies used</i> | | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Supplies Expense</td> </tr> <tr> <td style="text-align: center;">700</td> </tr> </table> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Supplies</td> </tr> <tr> <td style="text-align: center;">900</td> </tr> <tr> <td style="border-bottom: 1px solid black; text-align: center;">700</td> </tr> <tr> <td style="text-align: center;">200</td> </tr> </table> | Supplies Expense | 700 | Supplies | 900 | 700 | 200 |
| Supplies Expense | 700 | | | | | | | | | | | | | |
| Supplies | 700 | | | | | | | | | | | | | |
| <i>Adjusting entry to reflect supplies used</i> | | | | | | | | | | | | | | |
| Supplies Expense | | | | | | | | | | | | | | |
| 700 | | | | | | | | | | | | | | |
| Supplies | | | | | | | | | | | | | | |
| 900 | | | | | | | | | | | | | | |
| 700 | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | | |

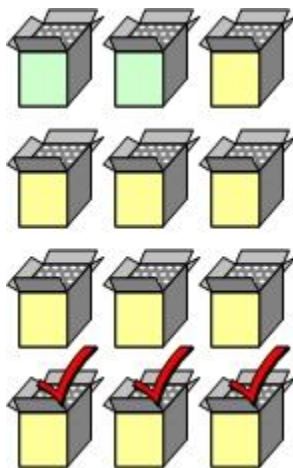
The above example is probably not too difficult for you. So, let's dig a little deeper, and think about how these numbers would be produced. Obviously, the \$900 purchase of supplies would be traced to a specific transaction. In all likelihood, the supplies were placed in a designated supply room (like a cabinet, closet, or chest). Perhaps the storage room has a person "in charge" to make sure that supplies are only issued for legitimate purposes to authorized personnel (a log book may be maintained). Each time someone withdraws supplies, a journal entry to record expense *could* be initiated; but, of course, this would be time consuming and costly (you might say that the record keeping cost would exceed the benefit). Instead, it is more likely that supplies accounting records will only be updated at the end of an accounting period.




To determine the amount of adjustment, one might "back in" to the calculation: Supplies in the storage room are physically counted at the end of the period (assumed to be \$200); since the account has a \$900 balance from the December 8 entry, one "backs in" to the \$700 adjustment on December 31. In other words, since \$900 of supplies were purchased, but only \$200 were left over, then \$700 must have been used.

The following year becomes slightly more challenging. If an additional \$1,000 of supplies is purchased during 20X2, and the ending balance at December 31, 20X2, is physically counted at \$300, then these entries would be needed:

| | | | |
|----------|---|-------|-------|
| XX-XX-X2 | <u>Supplies</u> | 1,000 | |
| | <u>Cash</u> | | 1,000 |
| | <i>Purchased supplies for \$1,000</i> | | |
| 12-31-X2 | <u>Supplies Expense</u> | 900 | |
| | <u>Supplies</u> | | 900 |
| | <i>Adjusting entry to reflect supplies used</i> | | |

The \$1,000 amount is clear enough, but what about the \$900 of expense? You must take into account that you started 20X2 with a \$200 beginning balance (last year's "leftovers"), purchased an additional \$1,000 (giving you total "available" for the period at \$1,200), and ended with only \$300 of supplies. Thus, \$900 was "used up" during the period:



| | |
|---|---------------|
|  Beginning balance | \$ 200 |
|  Plus: Purchases | <u>1,000</u> |
| Supplies available | \$1,200 |
|  Less: Ending supplies (per count) | <u>300</u> |
| Supplies used (i.e., expense) | <u>\$ 900</u> |

DEPRECIATION: Many assets have a very long life. Examples include buildings and equipment. These assets will provide productive benefits to a number of accounting periods. Accounting does not attempt to measure the change in "value" of these assets each period. Instead, a portion of their cost is simply allocated to each accounting period. This process is called **depreciation**. A subsequent chapter will cover depreciation methods in great detail. However, one simple approach is called the straight-line method. Under this method, an equal amount of asset cost is assigned to each year of service life. In other words, the cost of the asset is divided by the years of useful life, resulting in annual depreciation expense.

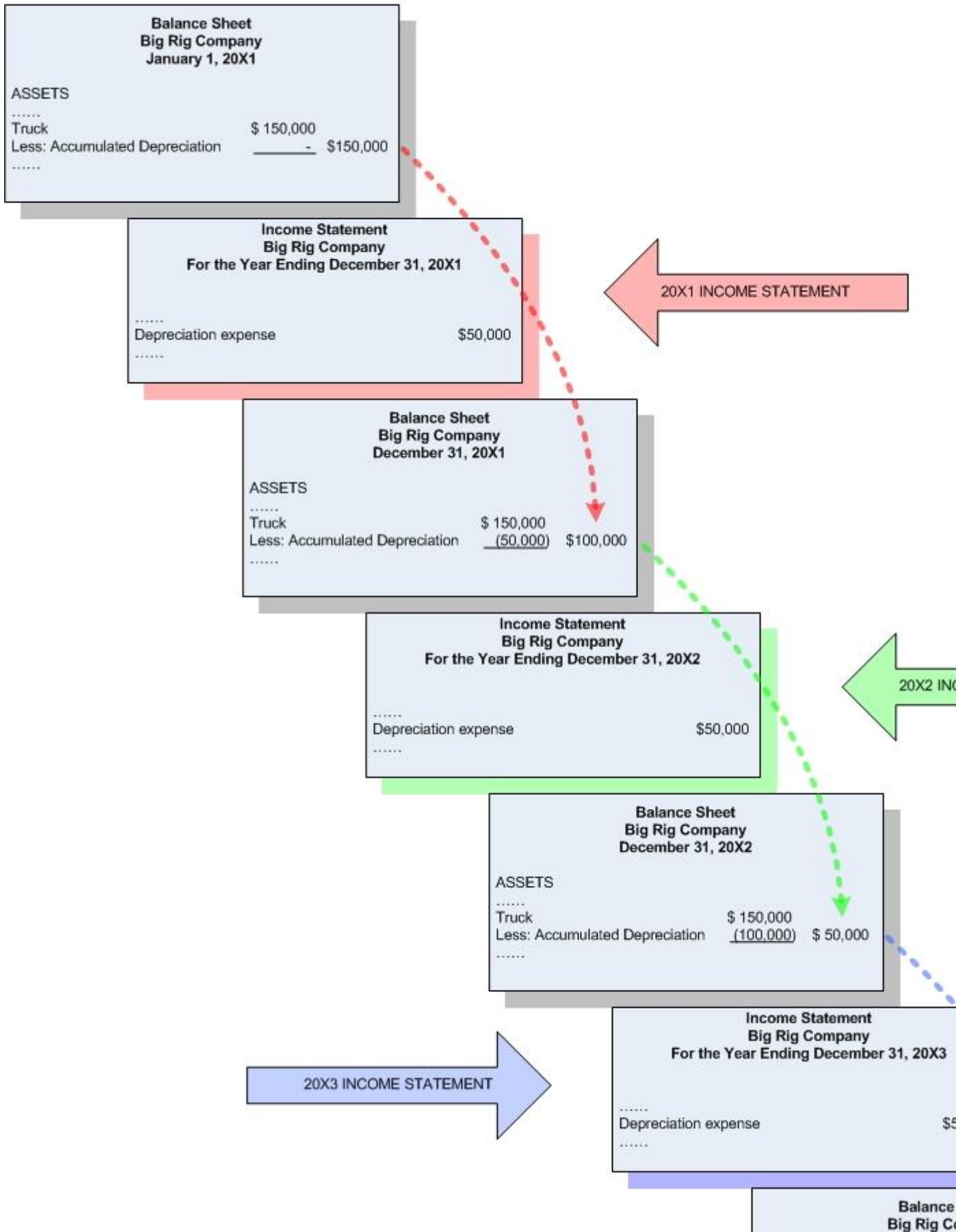
By way of example, if a \$150,000 truck with an 3-year life was purchased on January 1 of Year 1, depreciation expense would be \$50,000 ($\$150,000/3 = \$50,000$) per year. \$50,000 of expense would be reported on the income statement each year for three years. Each year's journal entry

to record depreciation involves a debit to Depreciation Expense and a credit to Accumulated Depreciation (rather than crediting the asset account directly):

| | | | |
|----------|--|--------|--------|
| 12-31-XX | Depreciation Expense | 50,000 | |
| | Accumulated Depreciation | | 50,000 |
| | <i>To record annual depreciation expense</i> | | |

Accumulated depreciation is a very unique account. It is reported on the balance sheet as a **contra asset**. A contra account is an account that is subtracted from a related account. As a result, contra accounts have opposite debit/credit rules from those of the associated accounts. In other words, accumulated depreciation is increased with a credit, because the associated asset normally has a debit balance. This topic usually requires additional clarification. Let's see how this truck, the related accumulated depreciation, and depreciation expense would appear on the balance sheet and income statement for each year:

\$150,000 is paid on January 1, 20X1, for a truck with a three-year life



As you can see on each year's balance sheet, the asset continues to be reported at its \$150,000 cost. However, it is also reduced each year by the ever-growing accumulated depreciation. The asset cost minus accumulated depreciation is known as the "net book value" of the asset. For example, at December 31, 20X2, the net book value of the truck is \$50,000, consisting of \$150,000 cost less \$100,000 of accumulated depreciation. By the end of the asset's life, its cost has been fully depreciated and its net book value has been reduced to zero. Customarily the asset could then be removed from the accounts, presuming it is then fully used up and retired.

UNEARNED REVENUES: Often, a business will collect monies in advance of providing goods or services. For example, a magazine publisher may sell a multi-year subscription and collect the full payment at or near the beginning of the subscription period. Such payments received in advance are initially recorded as a debit to Cash and a credit to Unearned Revenue. **Unearned revenue** is reported as a liability, reflecting the company's obligation to deliver product in the future. Remember, revenue cannot be recognized in the income statement until the earnings process is complete.

As goods and services are delivered (e.g., the magazines are delivered), the Unearned Revenue is reduced (debited) and Revenue is increased (credited). The balance sheet at the end of an accounting period would include the remaining unearned revenue for those goods and services not yet delivered. The rationale for this approach is important to grasp; a liability exists to deliver goods and services in the future and should be reflected in the balance sheet. Equally important, revenue (on the income statement) should only be reflected as goods and services are actually delivered (in contrast to recognizing them solely at the time of payment). Unearned Revenue accounts may be found in the balance sheets of many businesses, including software companies (that license software use for multiple periods), funeral homes (that sell preneed funeral agreements), internet service providers (that sell multi-period access agreements), advertising agencies (that sell advertising services in advance), law firms (that require advance "retainer" payments), airlines (that sell tickets in advance), and so on. Following are illustrative entries for the accounting for unearned revenues:

| | | | |
|----------|---|-------|-------|
| 4-1-X1 | <u>Cash</u> | 1,200 | |
| | <u>Unearned Revenue</u> | | 1,200 |
| | <i>Sold a one-year software license for \$1,200</i> | | |
| 12-31-X1 | <u>Unearned Revenue</u> | 900 | |
| | <u>Revenue</u> | | 900 |
| | <i>Year-end adjusting entry to reflect "earned" portion of software license (9 months at \$100 per month)</i> | | |

ACCRUALS: Another type of adjusting journal entry pertains to the "accrual" of unrecorded expenses and revenues. **Accruals** are expenses and revenues that gradually accumulate throughout an accounting period. **Accrued expenses** relate to such things as salaries, interest, rent, utilities, and so forth. **Accrued revenues** might relate to such events as client services that are based on hours worked. Because of their importance, several examples follow.

ACCRUED SALARIES: Few, if any, businesses have daily payroll. Typically, businesses will pay employees once or twice per month. Suppose a business has employees that collectively earn \$1,000 per day. The last payday occurred on December 26, as shown in the 20X8 calendar at left below. Employees worked three days the following week, but would not be paid for this time until January 9, 20X9. As of the end of the accounting period, the company owes employees \$3,000 (pertaining to December 29, 30, and 31). As a result, the adjusting entry to record the accrued payroll would appear as follows:

| December 20X8 | | | | | | |
|---------------|----|----|----|----|----|----|
| S | M | T | W | T | F | S |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

| January 20X9 | | | | | | |
|--------------|----|----|----|----|----|----|
| S | M | T | W | T | F | S |
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

○ Paydays ○ Paid Holiday

Accruals

Days Paid For on 9th

| | | | |
|----------|-----------------------------------|-------|-------|
| 12-31-X8 | Salaries Expense | 3,000 | |
| | Salaries Payable | | 3,000 |
| | <i>To record accrued salaries</i> | | |

The above entry records the \$3,000 of expense for services rendered by the employees to the company during year 20X8, and establishes the liability for amounts that have accumulated and will be included in the next round of paychecks.

Before moving on to the next topic, you should also consider the entry that will be needed on the next payday (January 9, 20X9). Suppose the total payroll on that date is \$10,000 (\$3,000 relating to the prior year (20X8) and another \$7,000 for an additional seven days in 20X9). The journal entry on the actual payday needs to reflect that the \$10,000 is partially for expense and partially to extinguish a previously established liability:

| | | | |
|--------|---|-------|--------|
| 1-9-X9 | Salaries Expense | 7,000 | |
| | Salaries Payable | 3,000 | |
| | Cash | | 10,000 |
| | <i>To record payment of payroll relating to two separate accounting periods</i> | | |

You should carefully note that the above process assigns the correct amount of expense to each of the affected accounting years (regardless of the moment of payment). In other words, \$3,000 is expensed in 20X8 and \$7,000 is expensed in 20X9.

ACCRUED INTEREST: Most loans include charges for interest. Interest charges are usually based on agreed rates, such as 6% per year. The amount of interest therefore depends on the amount of the borrowing ("principal"), the interest rate ("rate"), and the length of the borrowing period ("time"). The total amount of interest on a loan is calculated as Principal X Rate X Time. For example, if \$100,000 is borrowed at 6% per year for 18 months, the total interest will amount to \$9,000 (\$100,000 X 6% X 1.5 years). However, even if the interest is not payable until the end of the loan, it is still logical and appropriate to "accrue" the interest as time passes. This is necessary to assign the correct interest cost to each accounting period. Assume that our 18 month loan was taken out on July 1, 20X1, and was due on December 31, 20X2. The accounting for the loan on the various dates (assume a December year end, with an appropriate year-end adjusting entry for the accrued interest) would be as follows:

| | | | |
|-------------|---|---------|---------|
| 20X1 | ----- | | |
| 7-1-X1 | Cash | 100,000 | |
| | Loan Payable | | 100,000 |
| | <i>To record the borrowing of \$100,000 at 6% per annum; principal and interest due on 12-31-X2</i> | | |

| | | | |
|-------------|--|---------|---------|
| 12-31-X1 | Interest Expense | 3,000 | |
| | Interest Payable | | 3,000 |
| | <i>To record accrued interest for 6 months (\$100,000 X 6% X 6/12)</i> | | |
| | | | |
| 20X2 | ----- | | |
| 12-31-X2 | Interest Expense | 6,000 | |
| | Interest Payable | 3,000 | |
| | Loan Payable | 100,000 | |
| | Cash | | 109,000 |
| | <i>To record repayment of loan and interest (note that \$3,000 of the total interest was previously accrued)</i> | | |

In reviewing the above entries, it is important to note that the loan benefited 20X1 for six months, hence \$3,000 of the total interest was expensed in 20X1. The loan benefited 20X2 for twelve months, and twice as much interest expense was recorded in 20X2.

ACCRUED RENT: Accrued rent is the opposite of the prepaid rent discussed earlier. Recall that prepaid rent accounting related to rent that was paid in advance. In contrast, accrued rent relates to rent that has not yet been paid – but the utilization of the asset has already occurred. For example, assume that office space is leased, and the terms of the agreement stipulate that rent will be paid within 10 days after the end of each month at the rate of \$400 per month. During December of 20X1, Cabul Company occupied the lease space, and the appropriate adjusting entry for December follows:

| | | | |
|----------|-------------------------------|-----|-----|
| 12-31-X1 | Rent Expense | 400 | |
| | Rent Payable | | 400 |
| | <i>To record accrued rent</i> | | |

When the rent is paid on January 10, 20X2, this entry would be needed:

| | | | |
|---------|--|-----|-----|
| 1-10-X2 | Rent Payable | 400 | |
| | Cash | | 400 |
| | <i>To record payment of accrued rent</i> | | |

ACCRUED REVENUE: Many businesses provide services to clients under an understanding that they will be periodically billed for the hours (or other units) of service provided. For example, an accounting firm may track hours worked on various projects for their clients. These hours are likely accumulated and billed each month, with the periodic billing occurring in the month following the month in which the service is provided. As a result, money has been “earned” during a month, even though it won’t be billed until the following month. Accrual accounting concepts dictate that such revenues be recorded when “earned.” The following entry would be needed at the end of December to accrue revenue for services rendered to date (even though the physical billing of the client may not occur until January):

| | | | |
|----------|--|-----|-----|
| 12-31-X2 | Accounts Receivable | 500 | |
| | Revenue | | 500 |
| | <i>Year-end adjusting entry to reflect "earned" revenues for services provided in December</i> | | |

RECAP OF ADJUSTMENTS: The preceding discussion of adjustments has been presented in great detail because it is imperative to grasp the underlying income measurement principles. Perhaps the single most important element of accounting judgment is to develop an appreciation for the correct measurement of revenues and expenses. These processes can be fairly straightforward, as in the above illustrations. At other times, the measurements can grow very complex. A business process rarely starts and stops at the beginning and end of a month, quarter or year – yet the accounting process necessarily divides that flowing business process into measurement periods. And, the adjusting process is all about getting it right; to assign costs and revenues to each period in a proper fashion.

THE ADJUSTED TRIAL BALANCE: Keep in mind that the trial balance [introduced in the previous chapter](#) was prepared before considering adjusting entries. Subsequent to the adjustment process, another trial balance can be prepared. This **adjusted trial balance** demonstrates the equality of debits and credits after recording adjusting entries. The adjusted trial balance would look the same as the trial balance, except that all accounts would be updated for the impact of each of the adjusting entries. Therefore, correct financial statements can be prepared directly from the adjusted trial balance. The next chapter looks at the adjusted trial balance in detail.

ALTERNATIVE PROCEDURES FOR CERTAIN ADJUSTMENTS: In accounting, as in life, there is often more than one approach to the same end result. The mechanics of accounting for *prepaid expenses* and *unearned revenues* can be carried out in several ways. No matter which method is employed, the resulting financial statements should be identical.

As an example, recall the illustration of accounting for prepaid insurance -- Prepaid Insurance was debited and Cash was credited at the time of purchase. This is referred to as a "balance sheet approach" because the expenditure was initially recorded into a prepaid account on the balance sheet. However, an alternative approach is the "income statement approach." With this approach, the Expense account is debited at the time of purchase. The appropriate end-of-period adjusting entry "establishes" the Prepaid Expense account with a debit for the amount relating to future periods. The offsetting credit reduces the expense account to an amount equal to the amount consumed during the period. Review the following comparison, noting in particular that Insurance Expense and Prepaid Insurance accounts have identical balances at December 31 under either approach:

| Balance Sheet Approach | | | | | | Income Statement Approach | | | | |
|------------------------|---|-------|-------|-------|--|---------------------------|---|-------|-------|-------|
| Jan. 1 | Prepaid Insurance | 9,000 | | | | Jan. 1 | Insurance Expense | 9,000 | | |
| | Cash | | 9,000 | | | | Cash | | 9,000 | |
| | <i>Prepaid a three-year insurance policy for cash</i> | | | | | | <i>Prepaid a three-year insurance policy for cash</i> | | | |
| Dec. 31 | Insurance Expense | 3,000 | | | | Dec. 31 | Prepaid Insurance | | 6,000 | |
| | Prepaid Insurance | | 3,000 | | | | Insurance Expense | | | 3,000 |
| | <i>To adjust prepaid insurance to reflect portion expired (\$9,000/3 = \$3,000)</i> | | | | | | <i>To adjust prepaid insurance to reflect unexpired portion (\$9,000 X 2/3 = \$6,000)</i> | | | |
| | | | | 3,000 | | | | | | 9,000 |
| | | | | | | | | | | 3,000 |
| | | | | | | | | | | 6,000 |

Accounting for unearned revenue can also follow a balance sheet or income statement approach. The balance sheet approach for unearned revenue was presented earlier in this chapter, and is represented at left below. At right is the income statement approach for the same facts. Under the income statement approach, the initial receipt is recorded entirely to a Revenue account. Subsequent end-of-period adjusting entries reduce Revenue by the amount not yet earned and increase Unearned Revenue. As you can see, both approaches produce the same financial statements.

| Balance Sheet Approach | | | | | | Income Statement Approach | | | | |
|------------------------|---|-------|-------|-----|--|---------------------------|---|-------|-------|-------|
| Apr. 1 | Cash | 1,200 | | | | Apr. 1 | Cash | 1,200 | | |
| | Unearned Revenue | | 1,200 | | | | Revenue | | 1,200 | |
| | <i>Sold a one-year software license for \$1,200</i> | | | | | | <i>Sold a one-year software license for \$1,200</i> | | | |
| Dec. 31 | Unearned Revenue | 900 | | | | Dec. 31 | Revenue | | 300 | |
| | Revenue | | 900 | | | | Unearned Revenue | | | 900 |
| | <i>Year-end adjusting entry to reflect "earned" portion of software license (9 months at \$100 per month)</i> | | | | | | <i>Year-end adjusting entry to reflect "unearned" portion of software license (3 months at \$100 per month)</i> | | | |
| | | | | 900 | | | | | | 1,200 |
| | | | | | | | | | | 300 |

The balance sheet and income statement methods result in identical financial statements. Notice that the income statement approach does have an advantage if the entire prepaid item or unearned revenue is fully consumed or earned by the end of an accounting period. No adjusting entry is needed because the expense or revenue was fully recorded at the date of the original transaction.

ACCRUAL- VERSUS CASH-BASIS ACCOUNTING

ACCRUAL-BASIS: Generally accepted accounting principles (GAAP) require that a business use the "accrual basis." Under this method, revenues and expenses are recognized as earned or incurred, utilizing the various principles introduced throughout this chapter.

CASH-BASIS ACCOUNTING: An alternative method in use by some small businesses is the "cash basis." The cash basis is not compliant with GAAP, but a small business that does not have a broad base of shareholders or creditors does not necessarily need to comply with GAAP. The cash basis is much simpler, but its financial statement results can be very misleading in the short run. Under this easy approach, revenue is recorded when cash is received (no matter when it is "earned"), and expenses are recognized when paid (no matter when "incurred").

MODIFIED APPROACHES: The cash and accrual techniques may be merged together to form a modified cash basis system. The **modified cash basis** results in revenue and expense recognition as cash is received and disbursed, with the exception of large cash outflows for long-lived assets (which are recorded as assets and depreciated over time). However, to repeat, proper income measurement and strict compliance with GAAP dictates use of the accrual basis; virtually all large companies use the accrual basis.

ILLUSTRATION OF CASH VERSUS ACCRUAL BASIS OF ACCOUNTING: Let's look at an example for Ortiz Company. Ortiz provides web design services to a number of clients and has been using the cash basis of accounting. The following spreadsheet is used by Ortiz to keep up with the business's cash receipts and payments. This type of spreadsheet is very common for a small business. The "checkbook" is in green, noting the date, party, check number, check amount, deposit amount, and resulting cash balance. The deposits are spread to the revenue column (shaded in tan) and the checks are spread to the appropriate expense columns (shaded in yellow). Note that total cash on hand increased by \$15,732.70 (from \$7,911.12 to \$23,643.82) during the month.

Microsoft Excel - cash spreadsheet.XLS

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| | A | B | C | D | E | F | G | H | I |
|----|---------|-----------|---------|---------------------|---------------------|-------------|---------------------|--------------------|------------------|
| 1 | DATE | PARTY | REF # | CHECK | DEPOSIT | Balance | Revenue | Payroll | Supplies |
| 2 | | | | | | | | | |
| 3 | 4-1-X5 | | Balance | | | \$ 7,911.12 | | | |
| 4 | 4-3-X5 | Aldridge | 1097 | \$ 700.00 | | 7,211.12 | | \$ 700.00 | |
| 5 | 4-4-X5 | Rama | 1098 | 555.13 | | 6,655.99 | | | \$ 555.13 |
| 6 | 4-7-X5 | Kane | Deposit | | \$ 9,000.00 | 15,655.99 | \$ 9,000.00 | | |
| 7 | 4-12-X5 | Lipe | 1099 | 1,207.89 | | 14,448.10 | - | | |
| 8 | 4-15-X5 | Zhou | 1100 | 1,416.22 | | 13,031.88 | - | | |
| 9 | 4-17-X5 | Lobo | Deposit | - | 3,545.23 | 16,577.11 | 3,545.23 | | |
| 10 | 4-17-X5 | Raghunan | 1101 | 98.34 | - | 16,478.77 | - | | 98.34 |
| 11 | 4-19-X5 | Forgione | 1102 | 945.65 | - | 15,533.12 | - | | |
| 12 | 4-20-X5 | Vermeer | Deposit | - | 11,788.45 | 27,321.57 | 11,788.45 | | |
| 13 | 4-23-X5 | Aldridge | 1103 | 700.00 | - | 26,621.57 | - | 700.00 | |
| 14 | 4-24-X5 | Entwistle | Deposit | - | 1,500.00 | 28,121.57 | 1,500.00 | | |
| 15 | 4-26-X6 | Fletham | 1104 | 300.00 | - | 27,821.57 | - | | |
| 16 | 4-29-X5 | Mbagwu | 1105 | 498.99 | - | 27,322.58 | - | | |
| 17 | 4-30-X5 | Jenkins | 1106 | 3,678.76 | - | 23,643.82 | - | 3,678.76 | - |
| 18 | | | | <u>\$ 10,100.98</u> | <u>\$ 25,833.68</u> | | <u>\$ 25,833.68</u> | <u>\$ 5,078.76</u> | <u>\$ 653.47</u> |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

The information from this spreadsheet was used to prepare the following "cash basis" income statement for April, 20X5. The increase in cash that is evident in the spreadsheet is mirrored as the "cash basis income":

| ORTIZ CORPORATION Cash Basis Income Statement For the Month Ending April 30, 20X5 | | |
|---|-----------------|----------------------------|
| Revenues | | |
| Services to customers | | \$ 25,833.68 |
| Expenses | | |
| Payroll | \$ 5,078.76 | |
| Supplies | 653.47 | |
| Rent | 300.00 | |
| Server | 1,915.21 | |
| Administrative | <u>2,153.54</u> | |
| Total expenses | | <u>10,100.98</u> |
| Cash Basis Income | | <u>\$ 15,732.70</u> |
| INTERNAL USE ONLY: CASH BASIS - NOT PREPARED UNDER GENERALLY ACCEPTED ACCOUNTING PRINCIPLES | | |

Ortiz has been approached by Mega Impressions, a much larger web-hosting and design firm. Mega has offered to buy Ortiz's business for a price equal to "100 times" the business's monthly net income, as determined under generally accepted accounting principles. An accounting firm has been retained to prepare Ortiz's April income statement under the accrual basis. The following additional information is gathered in the process of preparing the GAAP-based income statement:

- Revenues:
 - The \$9,000 deposit on April 7 was an advance payment for work to be performed equally during April, May, and June.
 - The \$11,788.45 deposit on April 20 was collection of an account for which the work was performed during January and February.
 - During April, services valued at \$2,000 were performed and billed, but not yet collected.
- Expenses:
 - Payroll -- The \$700 payment on April 3 related \$650 to the prior month. An additional \$350 is accrued by the end of April, but not paid.
 - Supplies -- The amount paid corresponded to the amount used.
 - Rent -- The amount paid corresponded to the amount used.
 - Server -- The \$1,416.22 payment on April 15 related \$500 to prior month's usage.
 - Admin -- An additional \$600 is accrued by the end of April, but not paid.

The accounting firm prepared the following accrual basis income statement and corresponding calculations in support of amounts found in the statement:

| ORTIZ CORPORATION Income Statement For the Month Ending April 30, 20X5 | | |
|---|-----------------------|-------------------------|
| Revenues | | |
| a. | Services to customers | \$ 10,045.23 |
| Expenses | | |
| b. | Payroll | \$ 4,778.76 |
| | Supplies | 653.47 |
| | Rent | 300.00 |
| c. | Server | 1,415.21 |
| d. | Administrative | <u>2,753.54</u> |
| | Total expenses | <u>9,900.98</u> |
| | Net Income | <u><u>\$ 144.25</u></u> |

- Cash Basis
- Less: Advance Payment
- Plus: Portion of Advance Payment Earned
- Less: Collection of Prior Receivables
- Plus: Unbilled Services
- a. **Accrual Basis Revenues**

- Cash Basis
- Less: Payment for Prior Month
- Plus: Accrued Payroll at End of Month
- b. **Accrual Basis Payroll**

- Cash Basis
- Less: Payment for Prior Month
- c. **Accrual Basis Server Expense**

- Cash Basis
- Plus: Accrued Administrative Costs
- d. **Accrual Basis Administrative Costs**

Although Ortiz was initially very interested in Mega's offer, he was very disappointed with the resulting accrual-basis net income and decided to reject the deal. This illustration highlights the important differences between cash- and accrual-basis accounting. Cash basis statements are significantly influenced by the timing of receipts and payments, and can produce periodic statements that are not reflective of the actual economic activity of the business for the specific period in question. The accrual basis does a much better job of portraying the results of operations during each time period. This is why it is very important to grasp the revenue and expense recognition concepts discussed in this chapter, along with the related adjusting entries that may be needed at the end of each accounting period.



chapter 4

The

[goals](#)

[problems](#) [check list and key terms](#)

Reporting Cycle

[discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#)

GOALS

Your goals for this "reporting cycle" chapter are to learn about:

- [Preparation of financial statements.](#)
- [The accounting cycle and closing process.](#)
- [The nature of "optional" reversing entries.](#)
- [Classified balance sheets.](#)
- [The importance of business liquidity and the concept of an operating cycle.](#)

DISCUSSION

PREPARING FINANCIAL STATEMENTS

THE TOUGH WORK IS DONE: In the previous chapter, you learned all about adjustments that might be needed at the end of each accounting period. These adjustments were necessary to bring a company's books and records current in anticipation of calculating and reporting its income and financial position. However, Chapter 3 did not illustrate how those adjustments would be used to actually prepare the financial statements. This chapter will begin with that task.

AN ILLUSTRATION: To illustrate the process for preparing financial statements, let's look at some facts for England Tours Company. England began operation early in 20X3. In the process of preparing its financial statements for the year ending December 31, 20X3, England determined that the following adjusting entries were needed. The numbers are all "assumed" and you should not be concerned about that. But, if you are unclear as to why any one of these entries might be needed, you should definitely review the detailed discussion of adjusting entries from the previous chapter.

| | | | |
|----------|--|-------|-------|
| 12-31-X3 | Depreciation Expense | 5,000 | |
| | Accumulated Depreciation | | 5,000 |
| | <i>To record annual depreciation expense for equipment with a 9-year life (\$45,000/9)</i> | | |
| 12-31-X3 | Salaries Expense | 2,000 | |
| | Salaries Payable | | 2,000 |
| | <i>To record accrued salaries due to</i> | | |

| | | | |
|----------|--|-------|-------|
| | <i>employees at the end of December</i> | | |
| 12-31-X3 | Interest Expense | 1,200 | |
| | Interest Payable | | 1,200 |
| | <i>To record accrued interest on note payable (\$20,000 X 6%)</i> | | |
| 12-31-X3 | Unearned Revenue | 1,800 | |
| | Revenue | | 1,800 |
| | <i>Year-end adjusting entry to reflect "earned" portion of tours sold in advance</i> | | |
| | | | |

Below is a graphic showing England's trial balance before the above adjusting entries, and after the adjusting entries. If England had prepared its financial statements based only on the unadjusted trial balance at left, the reported information would be incomplete and incorrect. Instead, it is necessary to utilize the adjusted trial balance at right because it has been updated to reflect the year-end adjusting entries.

| ENGLAND TOURS COMPANY Trial Balance December 31, 20X3 | | |
|---|------------------|------------------|
| | Debits | Credits |
| Cash | \$ 15,500 | |
| Accounts receivable | 4,500 | |
| Equipment | 45,000 | |
| Accounts payable | | \$ 4,000 |
| Unearned revenue | | 3,000 |
| Notes payable | | 20,000 |
| Capital stock | | 30,000 |
| Service revenue | | 31,000 |
| Salaries expense | 15,000 | |
| Advertising expense | 5,000 | |
| Fuel expense | 2,000 | |
| Dividends | 1,000 | - |
| | <u>\$ 88,000</u> | <u>\$ 88,000</u> |

Record Adjusting Entries in Journal

| | | | |
|----------|--|-------|-------|
| 12-31-03 | Depreciation Expense | 3,000 | |
| | Accumulated Depreciation | | 3,000 |
| | To record annual depreciation expense for equipment with a 3-year life (\$45,000/15) | | |
| 12-31-03 | Salaries Expense | 2,000 | |
| | Salaries Payable | | 2,000 |
| | To record accrued salaries due to employees at the end of December | | |
| 12-31-03 | Interest Expense | 1,200 | |
| | Interest Payable | | 1,200 |
| | To record accrued interest on note payable (\$20,000 x 6%) | | |
| 12-31-03 | Unearned Revenue | 1,000 | |
| | Revenue | | 1,000 |
| | To record adjusting entry to reflect "earned" portion of \$3,000 in advance | | |

Post Adjusting Entries to Ledger

| | | | |
|----------|--------------------------|-------|-------|
| 12-31-03 | Depreciation Expense | 3,000 | |
| | Accumulated Depreciation | | 3,000 |
| 12-31-03 | Salaries Expense | 2,000 | |
| | Salaries Payable | | 2,000 |
| 12-31-03 | Interest Expense | 1,200 | |
| | Interest Payable | | 1,200 |
| 12-31-03 | Unearned Revenue | 1,000 | |
| | Revenue | | 1,000 |

Prepare Adjusted Trial Balance From Ledger

CONSIDERING THE ACTUAL PROCESS FOR ADJUSTMENTS: Most of the time, a company will prepare its trial balance, analyze the trial balance for potential adjustments, and develop a list of necessary adjusting entries. Knowing what to adjust is not necessarily intuitive. It usually requires hands-on review by someone who is very knowledgeable about the business and accounting. As a practical matter, a company should not allow anyone and everyone to have access to the accounting system for purposes of entering year-end adjustments; too many errors and rogue entries will appear. Instead, a company will usually have a defined process where proposed entries are documented on a form (sometimes called a journal voucher). These forms are submitted to a chief accountant/controller who reviews and approves such proposed entries. The approved journal vouchers then serve as supporting documents to authorize data entry into the accounting system. The adjusting entries are entered in the journal, posted to the appropriate ledger accounts, and then the adjusted trial balance can be prepared from the up-to-date ledger.

FINANCIAL STATEMENTS: The adjusted trial balance is ordinarily sufficient to facilitate preparation of financial statements. You should take time to trace the amounts from England's adjusted trial balance to the financial statements that follow:

| ENGLAND TOURS COMPANY Income Statement For the Year Ending December 31, 20X3 | | |
|--|--------------|------------------------|
| Revenues | | |
| Tour services | | \$ 32,800 |
| Expenses | | |
| Salaries | \$ 17,000 | |
| Advertising | 5,000 | |
| Fuel | 2,000 | |
| Depreciation | 5,000 | |
| Interest | <u>1,200</u> | <u>30,200</u> |
| Net income | | <u>\$ 2,600</u> |

| ENGLAND TOURS COMPANY Statement of Retained Earnings For the Year Ending December 31, 20X3 | |
|--|------------------------|
| Beginning retained earnings | \$ - |
| Plus: Net income | <u>2,600</u> |
| | \$ 2,600 |
| Less: Dividends | <u>1,000</u> |
| Ending retained earnings | <u>\$ 1,600</u> |

| ENGLAND TOURS COMPANY Balance Sheet December 31, 20X3 | |
|---|--------------|
| Assets | |
| Cash | |
| Accounts receivable | |
| Equipment | \$ 45,000 |
| Less: Accumulated depreciation | <u>5,000</u> |
| Total assets | |
| Liabilities | |
| Accounts payable | \$ 4,000 |
| Salaries payable | 2,000 |
| Interest payable | 1,200 |
| Notes payable | 20,000 |
| Unearned revenue | <u>1,200</u> |
| Total liabilities | |
| Stockholders' equity | |
| Capital stock | \$ 30,000 |
| Retained earnings | <u>1,600</u> |
| Total stockholders' equity | |
| Total Liabilities and equity | |

COMPUTERIZATION: The financial statement preparation process is mostly mechanical, and easily automated. *Once the adjusting entries have been prepared and entered*, every accounting software package will race through the steps of processing the data to produce the financial statements. As such, you may be inclined to discount your need to understand how to move amounts from an adjusted trial balance into a set of financial statements. In some respects that is true, just as it is true that you do not need to know how to add and subtract if you own a calculator. Of course, you probably see the value of understanding addition and subtraction even if you use a calculator. In the same light, please consider that understanding the flow of transactions into financial statements is an essential foundation for furthering your knowledge of accounting.

A WORKSHEET APPROACH: Occasionally, one may desire to prepare financial statements that take into account necessary adjustments, but without actually updating journals and ledgers. Why? A manager may desire monthly financial reports even though the business may not formally prepare and book adjusting entries every month. A worksheet approach can be used for this purpose. Or, an auditor may use a worksheet to prepare financial statements that take into account recommended adjustments, before proposing that the actual journal/ledger be updated. The accounting department could be requested to prepare financial statements at any point in

time; rather than break routine and book entries outside of the normal cycle, they might instead simply prepare financial statements via an informal worksheet.

The following illustrates a typical worksheet. The data and adjustments correspond to information previously presented for England. The first set of columns is the unadjusted trial balance. The next set of columns reveal the end-of-period adjustments. The information in the first two sets of columns is combined to generate the adjusted trial balance columns. The last three pairs of columns in the worksheet are the appropriate financial statement extensions of amounts from the adjusted trial balance columns. For example, Cash is an asset account with a debit balance, and is "appropriately" extended to the debit column of the balance sheet pair of columns. Likewise, Service Revenue is an income statement account with a credit balance; notice that it is extended to the income statement credit column. This extension of accounts should occur for every item in the adjusted trial balance. Look at the following, and then consider the additional comments that follow.

| ENGLAND TOURS COMPANY WORKSHEET TO PREPARE FINANCIAL STATEMENTS DECEMBER 31, 20X3 | | | | | | | | |
|---|----------------------|------------------|--------------------|------------------|-------------------------------|------------------|-------------------------|------------------|
| | <u>Trial Balance</u> | | <u>Adjustments</u> | | <u>Adjusted Trial Balance</u> | | <u>Income Statement</u> | |
| | <i>Debit</i> | <i>Credit</i> | <i>Debit</i> | <i>Credit</i> | <i>Debit</i> | <i>Credit</i> | <i>Debit</i> | <i>Credit</i> |
| Cash | \$ 15,500 | | | | \$ 15,500 | | | |
| Accounts receivable | 4,500 | | | | 4,500 | | | |
| Equipment | 45,000 | | | | 45,000 | | | |
| Accounts payable | | \$ 4,000 | | | | \$ 4,000 | | |
| Unearned revenue | | 3,000 | \$ 1,800 | | | 1,200 | | |
| Notes payable | | 20,000 | | | | 20,000 | | |
| Capital stock | | 30,000 | | | | 30,000 | | |
| Service revenue | | 31,000 | | \$ 1,800 | | 32,800 | | \$ 32,800 |
| Salaries expense | 15,000 | | 2,000 | | 17,000 | | \$ 17,000 | |
| Advertising expense | 5,000 | | | | 5,000 | | 5,000 | |
| Fuel expense | 2,000 | | | | 2,000 | | 2,000 | |
| Dividends | 1,000 | | | | 1,000 | | | |
| Depreciation expense | | | 5,000 | | 5,000 | | 5,000 | |
| Accumulated depreciation | | | | 5,000 | | 5,000 | | |
| Salaries payable | | | | 2,000 | | 2,000 | | |
| Interest expense | | | 1,200 | | 1,200 | | 1,200 | |
| Interest payable | | | | 1,200 | | 1,200 | | |
| | <u>\$ 88,000</u> | <u>\$ 88,000</u> | <u>\$ 10,000</u> | <u>\$ 10,000</u> | <u>\$ 96,200</u> | <u>\$ 96,200</u> | <u>\$ 30,200</u> | <u>\$ 32,800</u> |
| Net income | | | | | | | 2,600 | |
| | | | | | | | <u>\$ 32,800</u> | <u>\$ 32,800</u> |
| Retained earnings | | | | | | | | |

After all adjusted trial balance amounts have been extended to the appropriate financial statement columns, the income statement columns are subtotaled. If credits exceed debits, the company has more revenues than expenses (e.g., \$32,800 vs. \$30,200 = \$2,600 net income)). On the other hand, an excess of debits over credits would represent a net loss. To complete the worksheet, the amount of net income or loss is entered in the lower portion of the income

statement columns in a manner which causes total debits to equal total credits. England Tours had a \$2,600 net income, and a debit is needed to balance the income statement pair. An offsetting credit is entered in the lower portion of the retained earnings columns. This credit represents income for the year that must be added to retained earnings to complete the preparation of a formal statement of retained earnings. Within the retained earnings columns, the subtotal indicates that ending retained earnings is \$1,600 (noted by the excess of credits (\$2,600) over debits (\$1,000)); this amount is debited in the retained earnings columns and credited in the balance sheet columns -- thereby bringing both sets of columns into final balance.

ANIMATION AND AN ADDITIONAL ILLUSTRATIONS: The preceding worksheet may appear a bit overwhelming. This [linked animation](#) presents the development of the worksheet on a step-by-step basis, and may further aid your understanding of the worksheet's construction. After you click through the animation, you will be returned to this location.

The illustration shown assumed England Tours was formed early in 20X3. As such, there was no beginning retained earnings balance. You may wonder how the worksheet would be influenced by a beginning retained earnings balance. [This link illustrates England's 20X4 worksheet](#), where the \$1,600 ending retained earnings from 20X3 carries over to become the beginning balance for 20X4. The other numbers for 20X4 are all assumed.

You may also be curious to see how a net loss situation would be handled in the worksheet. [This link illustrates England's 20X5 worksheet](#). England lost money in 20X5.

THE ACCOUNTING CYCLE AND CLOSING PROCESS

THE ACCOUNTING CYCLE: Reflecting on the accounting processes thus far described reveals the following typical steps:

- transactions are recorded in the journal
- journal entries are posted to appropriate ledger accounts
- a trial balance is constructed
- adjusting entries are prepared and posted
- an adjusted trial balance is prepared
- formal financial statements are produced (perhaps with the assistance of a worksheet)

It appears that we have completed the **accounting cycle** -- capturing transaction and event data and moving it through an orderly process that results in the production of useful financial statements. And, importantly, we are left with substantial records that document each transaction (the journal) and each account's activity (the ledger). It is no wonder that the basic elements of this accounting methodology have endured for hundreds of years.

THE CLOSING PROCESS: There remains one final step. It is known as the **closing process**. The purpose of the closing process is two-fold:

1. Closing is a mechanism to update the retained earnings account in the ledger to equal the end-of-period balance. Keep in mind the recording of each item of revenue, expense, or dividend does not automatically produce an updating debit or credit to retained earnings. As such, the *beginning-of-period* retained earnings amount remains in the ledger until the closing process "updates" the retained earnings account for the impact of the period's operations.
2. Revenue, expense, and dividend accounts represent amounts for a period of time; one must "zero out" these accounts at the end of each period (as a result, revenue, expense, and dividend accounts are called **temporary or nominal accounts**). In essence, by zeroing out these accounts, one has reset them to begin the next accounting period. In contrast,

asset, liability, and equity accounts are called **real accounts**, as their balances are carried forward from period to period. For example, one does not "start over" each period accumulating assets like cash and so on -- their balances carry forward.

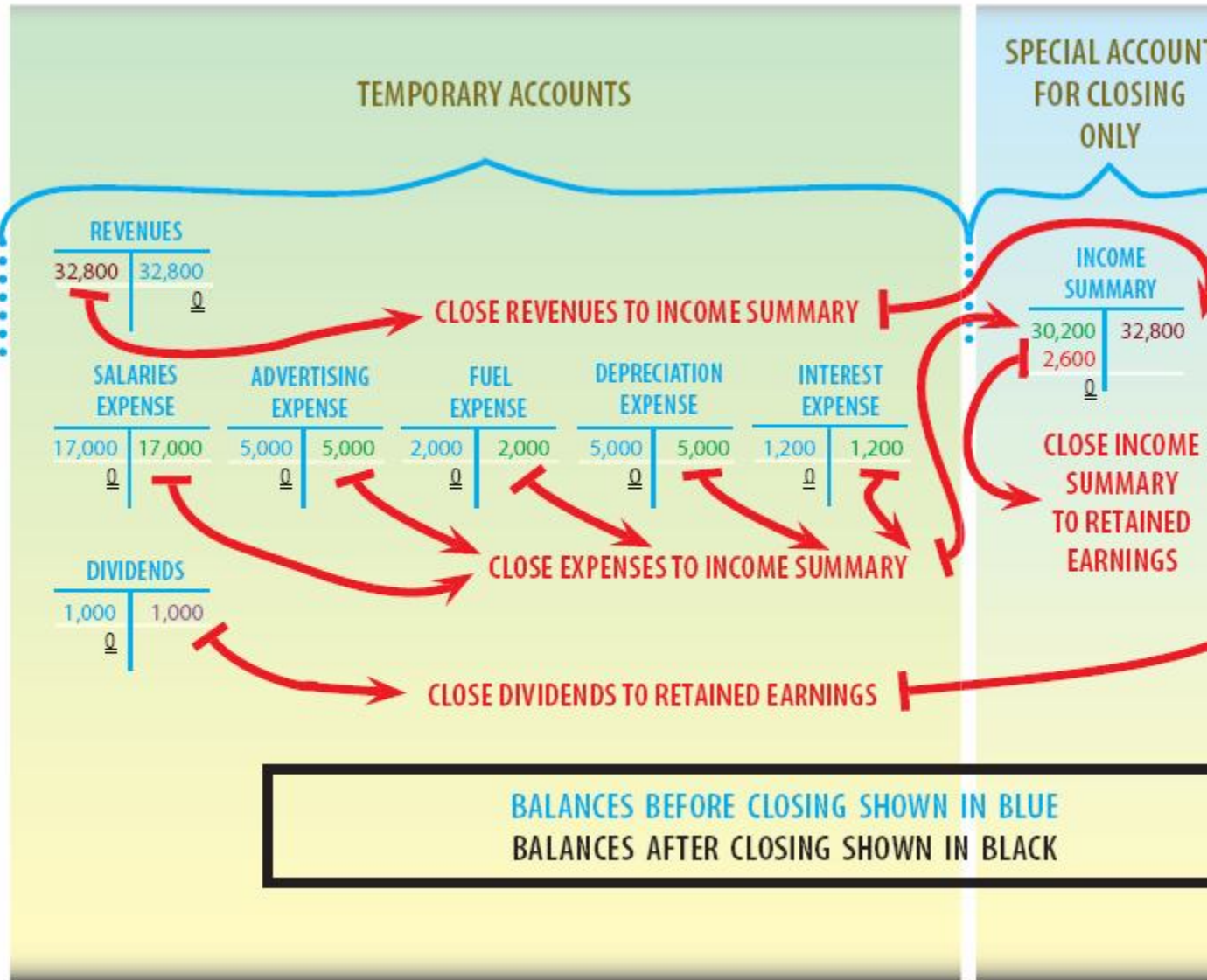
Closing involves a four step process: (a) close revenue accounts (to a unique account called **Income Summary** -- a non-financial statement account used only to facilitate the closing process), (b) close expense accounts to Income Summary, (c) close the Income Summary account to Retained Earnings, and (d) close the Dividend account to Retained Earnings. By doing this, all revenues and expenses are "corralled" in Income Summary (the net of which represents the income or loss for the period). In turn, the income or loss is then swept to Retained Earnings along with the dividends. Recall that beginning retained earnings, plus income, less dividends, equals ending retained earnings; likewise, the closing process updates the beginning retained earnings to move forward to the end-of-period balance.

Below are the closing entries for England Tours. You may find it helpful to compare the accounts and amounts below to those that appeared in the previous adjusted trial balance:

| | | | |
|----------|---|--------|--------|
| 12-31-X3 | <u>Revenues</u> | 32,800 | |
| | <u>Income Summary</u> | | 32,800 |
| | <i>To close the revenue account to Income Summary</i> | | |
| 12-31-X3 | <u>Income Summary</u> | 30,200 | |
| | <u>Salaries Expense</u> | | 17,000 |
| | <u>Advertising Expense</u> | | 5,000 |
| | <u>Fuel Expense</u> | | 2,000 |
| | <u>Depreciation Expense</u> | | 5,000 |
| | <u>Interest Expense</u> | | 1,200 |
| | <i>To close the expense accounts to Income Summary</i> | | |
| 12-31-X3 | <u>Income Summary</u> | 2,600 | |
| | <u>Retained Earnings</u> | | 2,600 |
| | <i>To close Income Summary to retained earnings (note that the balance is equal to the net income resulting from netting all revenues and expenses)</i> | | |
| 12-31-X3 | <u>Retained Earnings</u> | 1,000 | |
| | <u>Dividends</u> | | 1,000 |
| | <i>To close dividends</i> | | |

Be certain to note the effect of the above entries is to (1) update the retained earnings account and (2) cause a zero balance to occur in the temporary (revenue, expense, and dividends) accounts. The Income Summary account is also left "zeroed" out (\$32,800 (cr.) = \$30,200 (dr.) +

\$2,600 (dr.)). The following T-accounts reveal the effects of the closing entries on the various accounts:



POST CLOSING TRIAL BALANCE: The **post-closing trial balance** reveals the balance of accounts after the closing process, and consists of balance sheet accounts only. The post-closing trial balance is a tool to demonstrate that accounts are in balance; it is not a formal financial statement. All of the revenue, expense, and dividend accounts were zeroed away via closing, and do not appear in the post-closing trial balance.

| ENGLAND TOURS COMPANY Post-Closing Trial Balance December 31, 20X3 | | |
|--|------------------|------------------|
| | <u>Debits</u> | <u>Credits</u> |
| Cash | \$ 15,500 | |
| Accounts receivable | 4,500 | |
| Equipment | 45,000 | |
| Accumulated depreciation | | \$ 5,000 |
| Accounts payable | | 4,000 |
| Salaries payable | | 2,000 |
| Interest payable | | 1,200 |
| Notes payable | | 20,000 |
| Unearned revenue | | 1,200 |
| Capital stock | | 30,000 |
| Retained earnings | - | 1,600 |
| | <u>\$ 65,000</u> | <u>\$ 65,000</u> |

REVISITING COMPUTERIZATION: Many accounting software programs are based on data-base logic. These powerful tools allow the user to query with few restrictions. As such, one could request financial results for most any period of time (e.g., the 45 days ending October 15, 20XX), even if it related to a period several years ago. In these cases, the notion of closing the accounts becomes far less relevant. Very simply, the computer can mine all transaction data and pull out the accounts and amounts that relate to virtually any requested interval of time.

REVERSING ENTRIES

REVERSING ENTRIES: **Reversing entries** are an optional accounting procedure which may prove useful in simplifying record keeping. A reversing entry is a journal entry to "undo" an adjusting entry. You will soon see how reversing entries can simplify the overall process.

First, consider this example, which does not utilize reversing entries. An adjusting entry was made to record \$2,000 of accrued salaries at the end of 20X3. The next payday occurred on January 15, 20X4, when \$5,000 was paid to employees. The entry on that date required a debit to Salaries Payable (for the \$2,000 accrued at the end of 20X3) and Salaries Expense (for \$3,000 earned by employees during 20X4):

Illustration Without Reversing Entries

| | | | |
|-------------|---|-------|-------|
| 20X3 | ----- | | |
| 12-31-X3 | Salaries Expense (20X3) | 2,000 | |
| | Salaries Payable | | 2,000 |
| | <i>Adjusting entry for accrued salaries due to employees at the end of December</i> | | |

| | | | |
|-------------|---|-------|-------|
| | | | |
| | Note: closing would "zero-out" all expense account at the end of 20X3 | | |
| | | | |
| 20X4 | ----- | | |
| 1-15-X4 | <u>Salaries Expense</u> (20X4) | 3,000 | |
| | <u>Salaries Payable</u> | 2,000 | |
| | <u>Cash</u> | | 5,000 |
| | <i>To record payroll, part of which related to prior year service</i> | | |
| | | | |

Let's revisit these facts using reversing entries. The adjusting entry in 20X3 to record \$2,000 of accrued salaries is the same as above. However, the first journal entry of 20X4 simply reverses the adjusting entry. On the following payday, January 15, 20X4, the entire payment of \$5,000 is recorded as expense:

Illustration With Reversing Entries

| | | | |
|-------------|---|-------|-------|
| 20X3 | ----- | | |
| 12-31-X3 | <u>Salaries Expense</u> (20X3) | 2,000 | |
| | <u>Salaries Payable</u> | | 2,000 |
| | <i>Adjusting entry for accrued salaries due to employees at the end of December</i> | | |
| | | | |
| | Note: closing would "zero-out" all expense account at the end of 20X3 | | |
| | | | |
| 20X4 | ----- | | |
| 1-1-X4 | <u>Salaries Payable</u> | 2,000 | |
| | <u>Salaries Expense</u> (20X4) | | 2,000 |
| | <i>Reversing entry for accrued salaries</i> | | |
| | | | |
| 1-15-X4 | <u>Salaries Expense</u> (20X4) | 5,000 | |
| | <u>Cash</u> | | 5,000 |
| | <i>To record payment of salaries</i> | | |
| | | | |

The net impact of these procedures is to record the correct amount of salary expense for 20X4 (\$2,000 credit and \$5,000 debit, produces the correct \$3,000 net debit to salaries expense). You may find it odd to credit an expense account on January 1, because, by itself, it makes no sense. The credit only makes sense when coupled with the subsequent debit on January 15. Notice from the following diagram that both approaches produce the same final results:

Cash

Accounts
Receivable

Inventory

OPERATING CYCLE

WITHOUT REVERSING ENTRIES

| 20X3 | | | |
|--|-------------------------|-------|-------|
| 12-31-X3 | Salaries Expense (20X3) | 2,000 | |
| | Salaries Payable | | 2,000 |
| Adjusting entry for accrued salaries due to employees at the end of December | | | |
| Note: closing would "zero-out" all expense account at the end of 20X3 | | | |
| 20X4 | | | |
| 1-15-X4 | Salaries Expense (20X4) | 3,000 | |
| | Salaries Payable | 2,000 | |
| | Cash | | 5,000 |
| To record payroll, part of which related to prior year service | | | |

WITH REVERSING ENTRIES

| 20X3 | | | |
|--|-------------------------|--|--|
| 12-31-X3 | Salaries Expense (20X3) | | |
| | Salaries Payable | | |
| Adjusting entry for accrued salaries due to employees at the end of December | | | |
| Note: closing would "zero-out" all expense account at the end of 20X3 | | | |
| 20X4 | | | |
| 1-1-X4 | Salaries Payable | | |
| | Salaries Expense (20X3) | | |
| Reversing entry for accrued salaries | | | |
| 1-15-X4 | Salaries Expense (20X4) | | |
| | Cash | | |
| To record payment of salaries | | | |

BY COMPARING THE ACCOUNTS AND AMOUNTS, NOTICE THAT THE SAME END RESULT IS ACHIEVED!

In practice, reversing entries will simplify the accounting process. For example, on the first payday following the reversing entry, a "normal" journal entry can be made to record the full amount of salaries paid as expense -- without having to give special consideration to the impact of any prior adjusting entry. Reversing entries would ordinarily be appropriate for those adjusting entries that involve the recording of accrued revenues and expenses; specifically, those that involve future cash flows. Importantly, whether reversing entries are used or not, the same result is achieved!

CLASSIFIED BALANCE SHEETS

A CLOSER LOOK AT THE BALANCE SHEET: The balance sheet reveals the assets, liabilities, and equity of a company. In examining a balance sheet, you should always be mindful that the components listed in a balance sheet are not necessarily at fair value. Many assets are carried at historical cost, and other assets are not reported at all (such as the value of a company's brand name, patents, and other internally developed resources). Nevertheless, careful examination of the balance sheet is essential to analysis of a company's overall financial condition. To facilitate proper analysis, accountants will often divide the balance sheet into categories or classifications. The result is that important groups of accounts can be identified and subtotaled. Such balance sheets are called "classified balance sheets."

ASSETS: The asset side of the balance sheet may be divided into as many as five separate sections (when applicable), in the following order:

- **Current Assets** are those assets that will be converted into cash or consumed in a relatively short period of time; specifically, those assets that will be converted into cash or consumed within one year or the operating cycle, whichever is longer. The **operating cycle** for a particular company is the period of time it takes to convert cash back into cash (i.e., purchase inventory, sell the inventory on account, and collect the receivable); this is usually less than one year. In listing assets within the current section, the most liquid

- assets should be listed first (i.e., cash, short-term investments, and receivables). These are followed with inventories and prepaid expenses.
- **Long-term Investments** include land purchased for speculation, funds set aside for a plant expansion program, funds redeemable from insurance policies (e.g., cash surrender value of life insurance), and investments in other entities.
 - **Property, Plant, and Equipment** includes the land, buildings, and equipment productively in use by the company.
 - **Intangible Assets** lack physical existence, and include items like purchased patents and copyrights, "goodwill" (the amount by which the price paid to buy another entity exceeds that entity's identifiable assets), and similar items.
 - **Other Assets** is the section used to report asset accounts that just don't seem to fit elsewhere, such as a special long-term receivable.

LIABILITIES: Just as the asset side of the balance sheet may be divided, so too for the liability section. The liability section is customarily divided into:

- **Current Liabilities** are those obligations that will be liquidated within one year or the operating cycle, whichever is longer. Normally, current liabilities are paid with current assets.
- **Long-term Liabilities** relate to any obligation that is not current, and include bank loans, mortgage notes, and the like. Importantly, some long-term notes may be classified partially as a current liability and partially as a long-term liability. The portion classified as current would be the principal amount to be repaid within the next year (or operating cycle, if longer). Any amounts due after that period of time would be shown as a long-term liability.

EQUITY: The appropriate financial statement presentation for equity depends on the nature of the business organization for which it is prepared. The illustrations in this book generally assume that the business is incorporated. Therefore, the equity section consists of:

- **Capital Stock** includes the amounts received from investors for the stock of the company. The investors become the owners of the company, and that ownership interest is represented by shares that can be transferred to others (without further involvement by the company). In actuality, the legalese of stock issues can become quite involved, and you are apt to encounter expanded capital stock related accounts (such as preferred stock, common stock, paid-in-capital in excess of par, and so on). Those advanced issues are covered in subsequent chapters.
- **Retained Earnings** is familiar to you, representing the accumulated income less the dividends. In essence, it is the profit that has been retained and plowed back (reinvested) into expansion of the business.

ILLUSTRATION OF CLASSIFIED BALANCE SHEET



| CLASSY COMPANY | | | |
|-------------------------------------|-----------------|------------------------------|------------------------------|
| Balance Sheet | | | |
| December 31, 20X3 | | | |
| ASSETS | | LIABILITIES | |
| Current Assets | | Current Liabilities | |
| Cash | \$ 100,000 | Accounts payable | |
| Short-term investments | 50,000 | Salaries payable | |
| Accounts receivable | 75,000 | Interest payable | |
| Inventories | 200,000 | Taxes payable | |
| Prepaid insurance | <u>25,000</u> | Current portion of r | |
| | \$ 450,000 | | |
| Long-term Investments | | Long-term Liabiliti | |
| Stock investments | \$ 40,000 | Note payable | |
| Cash value of insurance | <u>10,000</u> | Mortgage liability | |
| | 50,000 | | |
| Property, Plant & Equip. | | Total Liabilities | |
| Land | \$ 25,000 | | |
| Building and equipment | \$ 150,000 | | |
| Less: Accumulated depreciation | <u>(50,000)</u> | | |
| | <u>100,000</u> | | |
| | 125,000 | | |
| Intangible Assets | | STOCKHOLDERS' EQ | |
| Goodwill | | Capital stock | |
| | | Retained earnings | |
| | | 275,000 | |
| Other Assets | | Total Stockholders' E | |
| Receivable from employee | | | |
| | | <u>10,000</u> | |
| Total Assets | | <u>\$ 910,000</u> | Total Liabilities and |

OTHER ENTITY FORMS: There is nothing that requires that a business activity be conducted through a *corporation*. A *sole proprietorship* is an enterprise owned by one person. If the illustration above was instead being prepared for a sole proprietorship, it would look the same except that the equity section would consist of a single owner's capital account (instead of capital stock and retained earnings). If several persons are involved in a business that is not incorporated, it is likely a *partnership*. Again, the balance sheet would be unchanged except for the equity section; the equity section would be divided into separate accounts -- one for each partner (representing each partner's residual interest in the business). Recent years have seen a spate of legislation creating variants of these entity forms (limited liability companies/LLC, limited liability partnerships/LLP, etc.), but the overall balance sheet structure is relatively unaffected. The terminology used to describe entity forms and equity capital structure also varies considerably around the world, but there is very little substantive difference in the underlying characteristics or the general appearance and content of the balance sheet.

NOTES TO THE FINANCIAL STATEMENTS: Financial statements, by themselves, may not tell the whole story. Many important details about a company cannot be described in money on the balance sheet. Notes are used to describe accounting policies, major business events, pending lawsuits, and other facets of operation. The principle of **full disclosure** means that financial statements result in a fair presentation and that all facts which would influence investors' and creditors' judgments about the company are disclosed in the financial statements or related notes.



BUSINESS LIQUIDITY AND THE OPERATING CYCLE

ANALYSIS OF LIQUIDITY: As was noted above, careful examination of the balance sheet is essential to analysis of a company's financial health, and the classified balance sheet helps in that analysis. In particular, investors and creditors must be mindful of a company's liquidity.

Liquidity is the ability of a firm to meet its near-term obligations as they come due. Inadequate liquidity can spell doom, even for a company with bright long-term prospects and significant noncash assets.

WORKING CAPITAL: **Working capital** is the difference between current assets and current liabilities. The illustration for Classy Company revealed current assets of \$450,000 and current liabilities of \$150,000. Thus, working capital is \$300,000 (\$450,000 - \$150,000). For obvious reasons, one would hope to find a positive amount of working capital. If not, it may be an indication of financial stress.

Of course, care should be taken in drawing blanket conclusions about a firm's condition based solely upon an examination of a single number. Could a firm have negative working capital, and still be in great shape? Yes! For instance, the firm may have a standby letter of credit at a bank that enables it to borrow money as needed to meet near-term obligations. Or, some companies are in great shape even though they have negative working capital. Consider a fast food restaurant that has virtually no receivables (most sales are for cash) and a very low inventory (you know bread and milk don't store well). The only current assets may consist of cash, nominal inventories, and some prepaid items. Nevertheless, they may have current liabilities in the form of significant accounts payable and short-term debt. How do they survive? The velocity of their cash flow may be very fast, as they hopefully turn large volumes of business at high profit margins. This enables the spinning of enough free cash flow to pay obligations as they come due and have money left over to reinvest in growing other business locations. So, you see that working capital is important to monitor. Just be careful about blanket conclusions based on any single measure.

CURRENT RATIO: Is \$1,000,000 of working capital a lot? Maybe, maybe not. \$1,000,000 is but a drop in the bucket to a corporate giant, and that amount of working capital could signal the end. On the other hand, a "mom and pop" business could be doing grand with far less than \$1,000,000. So, it really depends on the ratio of current assets to current liabilities. The **current ratio** is used to express the relative amount of working capital. It is calculated by dividing current assets by current liabilities:

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

Classy Company has a current ratio of 3:1 (\$450,000/\$150,000). Be advised that ratios can be manipulated. If Classy wished to increase their current ratio, they could just pay off a little debt. For instance, if they paid off \$50,000 of accounts payable with cash, then current assets and current liabilities would each decline by \$50,000, and the revised current ratio would "improve" to 4:1 (((\$450,000 - \$50,000)/(\$150,000 - \$50,000)).

QUICK RATIO: A company could possess a large amount of inventory that is not easily sold. Thus, the current ratio (which includes inventory) could signal no problem, all the while the company is struggling to pay its bills. A tougher ratio is the **quick ratio**. This ratio provides a more stringent test of debt-paying ability by dividing only a firm's quick assets (cash, short-term investments, and accounts receivable) by current liabilities:

$$\text{Quick Ratio} = (\text{Cash} + \text{Short-term Investments} + \text{Accounts Receivable}) / \text{Current Liabilities}$$

Classy Company has a quick ratio of 1.5:1 $((\$100,000 + \$50,000 + \$75,000)/\$150,000)$.



principlesofaccounting

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chapter 5

Special Issues for Merchants

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "merchandising" chapter are to learn about:

- [Merchandising businesses and related sales recognition issues.](#)
- [Purchase recognition issues for the merchandising business.](#)
- [Alternative inventory system: The perpetual](#)

- [method.](#)
- [Enhancements of the income statement.](#)
- [The control structure.](#)

DISCUSSION

THE MERCHANDISING OPERATION -- SALES

MERCHANDISING: The discussion and illustrations in the earlier chapters were all based on businesses that generate their revenues by providing services (like law firms, lawn services, architects, etc.). Service businesses are a large component of an advanced economy. However, we also spend a lot of time in the stores or on the internet, buying the things we want or need. Such businesses are generally referred to as "merchants," and their business models are generally based upon purchasing inventory and reselling it at a higher price to customers.

Therefore, this chapter shifts focus from the service business to the merchandising business. Measuring income and reporting it on the income statement involves unique considerations. The most obvious issue is the computation and presentation of an amount called "gross profit." **Gross profit** is the difference between sales and cost of goods sold, and is reported on the income statement as an intermediate amount. Observe the income statement for Chair Depot at right. The gross profit number indicates that the company is selling merchandise for more than cost (\$200,000 in sales was generated from goods that cost \$120,000 to buy). Of course, you can see that the company also incurred other **operating expenses**; advertising, salaries, and rent. Nevertheless, the gross profit was sufficient to easily cover those costs and leave a tidy profit to boot. The presentation of the gross profit information is very important for users of the financial statements to get a clear picture of operating success. Obviously, if the gross profit rate is small, the business might have trouble making a profit, even if sales improved. Quite the reverse is true if the gross profit rate is strong; improved sales can markedly improve the bottom-line net income (especially if operating expenses like rent, etc., don't change with increases in sales)! It is easy

CHAIR DEPOT Income Statement For the Year Ending December 31, 20X3

| | | | |
|--------------------|--------------|------------------|--|
| Sales | | \$ 200,000 | |
| Cost of goods sold | | <u>120,000</u> | |
| Gross profit | | \$ 80,000 | |
| Operating Expenses | | | |
| Advertising | \$ 6,000 | | |
| Salaries | 9,000 | | |
| Rent | <u>5,000</u> | <u>20,000</u> | |
| Net income | | <u>\$ 60,000</u> | |

to see why separating the gross profit number from the other income statement components is an important part of reporting for the merchandising operation.

SALES: The Sales account is a revenue account used strictly for sales of merchandise. Sales are initially recorded via one of the following entries, depending on whether the sale is for cash or on account:

CASH SALE:

| | | | |
|--------|----------------------------------|-------|-------|
| 1-5-X5 | <u>Cash</u> | 4,000 | |
| | <u>Sales</u> | | 4,000 |
| | <i>Sold merchandise for cash</i> | | |


SALE ON ACCOUNT:

| | | | |
|--------|------------------------------------|-------|-------|
| 1-5-X5 | <u>Accounts Receivable</u> | 4,000 | |
| | <u>Sales</u> | | 4,000 |
| | <i>Sold merchandise on account</i> | | |

SALES RETURNS AND ALLOWANCES: Occasionally, a customer returns merchandise. When that occurs, the following entry should be made:

| | | | |
|--------|--|-------|-------|
| 1-9-X5 | <u>Sales Returns and Allowances</u> | 1,000 | |
| | <u>Accounts Receivable</u> | | 1,000 |
| | <i>Customer returned merchandise previously purchased on account</i> | | |

| CHAIR DEPOT | |
|--|-------------------|
| Income Statement | |
| For the Year Ending December 31, 20X3 | |
| Sales | \$ 200,000 |
| Less: Sales returns and allowances | <u>10,000</u> |
| Net sales | \$ 190,000 |
| Less: Cost of goods sold | <u>114,000</u> |
| Gross profit | \$ 76,000 |
| . | . |
| . | . |
| . | . |

NET SALES 

Notice that the above entry included a debit to Sales Returns and Allowances (rather than canceling the sale). The Sales Returns and Allowances account is a contra-revenue account that is deducted from sales; sales less sales returns and allowances is sometimes called "net sales." This approach is deemed superior because it allows interested parties to easily track the level of sales returns in relation to overall sales. Importantly, this presentation reveals information about



the relative level of returns and provides a measure of customer satisfaction or dissatisfaction. Sales returns (on account) are typically documented by the creation of an instrument known as a **credit memorandum**. The credit memorandum indicates that a customer's account receivable balance has been credited (reduced), and that payment for the returned goods is not expected. If the preceding transaction involved a cash refund, the only difference in the entry would involve a credit to cash instead of accounts receivable. The calculation of net sales would be unaffected.

Note that use of the word "allowances" in the account title "Sales Returns and Allowances." What is the difference between a *return* and an *allowance*? Perhaps a customer's reason for wishing to return an item is because of a minor defect; they may be willing to keep the item if the price is slightly reduced. The merchant may give them an allowance (e.g., a reduction in the price they previously agreed to) to induce them not to return the item. The entry to record an allowance would be identical to that above for the agreed amount of the price reduction, and the customer would keep the inventory item. (Of course, one could use a separate account for returns and another for allowances if they wished to track information about each of these elements.)

TRADE DISCOUNTS: Product catalogs often provide a "**list price**" for an item. Oftentimes those list prices bear little relation to the actual selling price. A merchant may offer customers a trade discount that involves a reduction from the catalog or list price. Ultimately, the purchaser is responsible for the **invoice price**, that is, the list price less the applicable **trade discount**. Trade discounts are not entered in the accounting records. They are not considered to be a part of the sale because the exchange agreement was based on the reduced price level. Remember the general rule: sales are recorded when an exchange takes place, based on the exchange price. Therefore, the amount recorded as a sale is the invoice price. The entries above (for the \$4,000 sale) would still be appropriate if the list price was \$5,000, subject to a 20% trade discount.

CREDIT CARDS: In the retail trade, merchants often issue credit cards. Why? Because they induce people to spend, and interest charges that may be assessed can themselves provide a generous source of additional profit. However, these company issued cards introduce lots of added costs: customers that don't pay (known as bad debts), maintenance of a credit department, periodic billings, and so forth. To avoid the latter, many merchants accept other forms of credit cards like American Express, Master Card, and so forth. When a merchant accepts these cards, they are usually paid instantly by the credit card company (net of a service charge that is negotiated in the general range of 1% to 3% of the sale). The subsequent billing and collection is handled by the credit card company. Many merchants will record the full amount of the sale as revenue, and then recognize an offsetting expense for the amount charged by the credit card companies.



BARBER SHOP SUPPLY

987 Industrial Blvd.
Chicago, IL 12345

INVOICE

88765

Bill to:
Tomas Mueller
Hair Port Landing
111 Style Lane, Suite 15
Dallas, TX 99889

DATE

TERMS

| P.O. NUMBER | INVOICE DATE | F.O.B. POINT | TERMS | |
|-------------------------------------|--------------|---------------------------------|------------|--------------|
| 66554f8 | May 11, 20X4 | Dallas | 2/10, n/30 | |
| QTY | PART # | DESCRIPTION | UNIT PRICE | TOTAL |
| 4 | A7786 | Full length Mirrors | \$ 90 | \$ 360 |
| 1 | C8876 | Swivel Chair -- brown leather | 500 | 500 |
| 1 | M8776 | Barber pole motor and light kit | 140 | 140 |
| <i>Thank you for your business!</i> | | | | |
| Subtotal | | | \$ | 1,000 |
| Sales Tax | | | | |
| Shipping & Handling | | | | - |
| Other | | | | |
| TOTAL | | | \$ | 1,000 |

AMOUNT

CASH DISCOUNTS: Merchants often sell to other businesses. For example, assume that Barber Shop Supply sells equipment to various barber shops on open account (i.e., a standing agreement to extend credit for purchases). In these settings, the seller would like to be paid promptly after billing, and may encourage prompt payment by offering a **cash discount** (also known as a **sales discount**).

There is a catch, though. To receive the cash discount, the buyer must pay the invoice promptly. The amount of time one has available to pay is expressed in a unique manner, such as 2/10, n/30 -- these terms mean that a 2% discount is available if the invoice is paid within 10 days, otherwise the net amount is expected to be paid within 30 days. Barber Shop Supply issued the invoice at right, and would record the following entry. Please take note of the invoice date, terms, and invoice amount.

| | | | |
|---------|---|-------|-------|
| 5-11-X4 | <u>Accounts Receivable</u> | 1,000 | |
| | <u>Sales</u> | | 1,000 |
| | <i>Sold merchandise on account, terms 2/10,n/30</i> | | |

If Hair Port Landing pays the invoice in time to receive the discount, the check at right for \$980 would be received by Barber Shop Supply, and recorded via the following entry. This entry reflects that the customer took advantage of the discount terms by paying within the 10-day window. Notice that the entry reduces Accounts Receivable for the full invoice amount because the payment satisfied the total obligation. The discount is recognized in a special Sales Discount account. The discount account would be reported in like manner to the Sales Returns and Allowance account presented earlier in this chapter.

| | | | |
|---------|---|-----|-------|
| 5-19-X4 | <u>Cash</u> | 980 | |
| | <u>Sales Discounts</u> | 20 | |
| | <u>Accounts Receivable</u> | | 1,000 |
| | <i>Collected outstanding receivable within discount period, 2% discount granted</i> | | |

Hair Port Landing
 111 Style Lane, Suite 15
 Dallas, TX 99889

Date: May 19, 20X4

Pay to the order of **BARBER SHOP SUPPLY** **\$980.00**

*****NINE-HUNDRED EIGHTY and NO/100 Dollars*****

1st Corner Bank
 1st Corner Bank

Memo Invoice #88765

Thomas Mueller



If the customer pays too late

to get the discount, then the payment received should be for the full invoice amount, and it would be recorded as follows:

| | | | |
|---------|---|--|-------|
| 5-29-X4 | Cash | | 1,000 |
| | Accounts Receivable | | 1,000 |
| | Collected outstanding receivable outside of the discount period | | |

Having looked at several of the important and unique issues for recognizing sales transactions of merchandising businesses, it is now time to turn to the accounting for purchasing activities.

PURCHASE CONSIDERATIONS FOR MERCHANDISING BUSINESSES

MERCHANDISE INVENTORY: A quick stroll through most any retail store will reveal a substantial investment in **inventory**. Even if a merchant is selling goods at a healthy profit, financial difficulties can creep up if a large part of the inventory remains unsold for a long period of time. Goods go out of style, become obsolete, and so forth. Therefore, a prudent business manager will pay very close attention to inventory content and level. There are many detailed accounting issues that pertain to inventory, and a separate chapter is devoted exclusively to inventory issues. This chapter's introduction is brief, focusing on elements of measurement that are unique to the merchant's accounting for the basic cost of goods.

MERCHANDISE ACQUISITION: The first phase of the merchandising cycle occurs when the merchant acquires goods to be stocked for resale to customers. The appropriate accounting for this action requires the recording of the purchase. Now, there are two different techniques for recording the purchase -- depending on whether a periodic system or a perpetual system is in use. Generalizing, the **periodic inventory system** is easier to implement but is less robust than the "real-time" tracking available under a perpetual system. Conversely, the **perpetual inventory system** involves more "systemization" but is a far superior business management tool. Let's begin with the periodic system; we'll then return to the perpetual system.

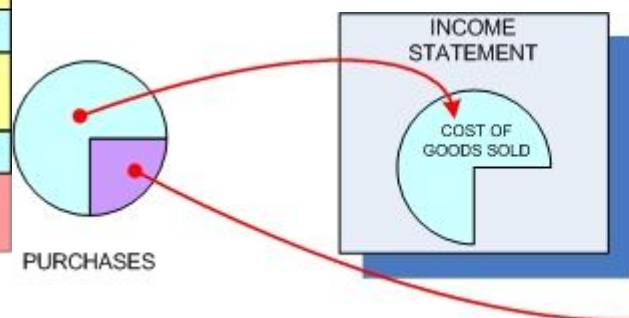
PERIODIC INVENTORY SYSTEM: When a purchase occurs and a periodic inventory system is in use, the merchant should record the transaction via the following entry:

| | | | |
|--------|--------------------------------|--|-------|
| 7-7-X1 | Purchases | | 3,000 |
| | Accounts Payable | | 3,000 |
| | Purchased inventory on account | | |

The Purchases account is unique to the periodic system. The Purchases account is not an expense or asset, per se. Instead, the account's balance represents total inventory purchased during a period, and this amount must ultimately be apportioned between cost of goods sold on the income statement and inventory on the balance sheet. The apportionment is based upon how much of the purchased goods are resold versus how much remains in ending inventory.

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|----------|------------------|---------|------------------------|----------|--------|----------|
| April 30 | May 1 | 2 | 3 | 4 | 5 | 6 |
| | DATE OF PURCHASE | | | | | |
| 7 | 8 | 9 | ⚠ 10 | 11 | 12 | 13 |
| | | | LAST DATE FOR DISCOUNT | 1 | 2 | 3 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 28 | 29 | 🔔 30 | 31 | June 1 | 2 | 3 |
| 18 | 19 | 20 DUE | PAST DUE! | | | |

Soon, you will see the accounting mechanics of how this occurs. But, for the moment, simply focus on the concepts portrayed by this graphic:



PURCHASE RETURNS AND ALLOWANCES: Recall the earlier discussion of sales returns and allowances. Now, the shoe is on the other foot. Let's see how a purchaser of inventory would handle a return to its vendor/supplier. First, it is a common business practice to contact the supplier before returning goods. Unlike the retail trade, transactions between businesses are not so easily undone. A supplier may require that you first obtain an "RMA" or "Return Merchandise Authorization." This indicates a willingness on the part of the supplier to accept the return. When the merchandise is returned to a supplier a **debit memorandum** may be prepared to indicate that the purchaser is to debit their Accounts Payable account; the corresponding credit is to Purchases Returns and Allowances:

| | | | |
|---------|--|-------|-------|
| 7-19-X1 | Accounts Payable | 1,000 | |
| | Purchase Returns & Allowances | | 1,000 |
| | <i>To record the return of defective inventory to vendor</i> | | |

Purchase returns and allowances are subtracted from purchases to calculate the amount of net purchases for a period. The specific calculation of net purchases will be demonstrated after a few more concepts are introduced.

CASH DISCOUNTS: Recall the previous discussion of cash discounts (sometimes called **purchase discounts** from the purchaser's perspective). Discounts are typically very favorable to the purchaser, as they are designed to encourage early payment. While discounts may seem slight, they usually represent a substantial savings and should usually be taken. Consider the calendar at right, assuming a purchase was made on May 1, terms 2/10,n/30. The discount can be taken if payment is made within the "green shaded" days (or potentially one additional day, depending on the agreement). The discount cannot be taken during the yellow shaded days (of which there are twenty, as noted). The bill becomes past due during the "red shaded days." What is important to note here is that skipping past the discount period will only achieve a 20-day deferral of the payment. If you consider that you are "earning" a 2% return by paying 20 days early, it is indeed a large savings. Consider that there are more than 18 twenty-day periods in a year (365/20), and, at 2% per twenty-day period, this equates to over a 36% annual interest cost equivalent.

Discount terms vary considerably. Here are some examples:

- 1/15,n/30 -- 1% if paid within 15 days, net in 30 days
- 1/10,n/eom -- 1% if paid within 10 days, net end of month
- .5/10,n/60 -- ½% if paid within 10 days, net in 60 days

Occasionally, a company may opt to skip a discount. In the case of the half-percent discount example, notice that the net amount is not due until the 60th day. Perhaps the purchaser would conclude that the additional 50 days is worth forgoing the half-percent savings, as the annual interest cost equivalent is only about 3.65% ($365/50 = 7.3$ "periods" per year -- times 0.5% per "period"). But, this is the exception rather than the rule. In short, taking the discounts usually makes good economic sense!

A business should set up its accounting system to timely process and take advantage of all reasonable discounts. In a small business setting, this might entail using a hanging-file system where invoices are filed for payment to match the discount dates. A larger company will usually have an automated payment system where checks are scheduled to process concurrent with invoice discount dates. Very large payments, and global payments, are frequently set up as "wire transfers." This method enables the purchaser to retain use of funds (and the ability to generate investment income on those funds) until the very last minute. This is considered to be a good business practice.

However, there is an ethical issue for you to consider. Many vendors will accept a "discounted payment" outside of the discount period. In other words, a purchaser might wait 30, 60, or 90 days and still take the discount! Some vendors are glad to receive the payment and will still grant credit for the discount. Others will return the payment and insist on the full amount due. Is it a good business practice to "bend the terms" of the agreement to take a discount when you know that your supplier will stand for this practice? Is it ethical to "bend the terms" of the agreement? If you discuss this with your classmates, you will find a diversity of opinion.

GROSS RECORDING OF PURCHASES/DISCOUNTS: A fundamental accounting issue is how to account for purchase transactions when discounts are offered. One technique is the **gross method** of recording purchases. This technique records purchases at their total gross or full invoice amount:

| | | | |
|---------|--|-------|-------|
| 11-5-X7 | <u>Purchases</u> | 5,000 | |
| | <u>Accounts Payable</u> | | 5,000 |
| | <i>Purchased inventory on account, terms 2/10,n/30</i> | | |

If payment is made *within* the discount period, the purchase discount is recognized in a separate account. The Purchase Discounts account is similar to Purchases Returns & Allowances, as it is deducted from total purchases to calculate the net purchases for the period:

| | | | |
|----------|--|-------|-------|
| 11-13-X7 | <u>Accounts Payable</u> | 5,000 | |
| | <u>Purchase Discounts</u> | | 100 |
| | <u>Cash</u> | | 4,900 |
| | <i>Paid outstanding payable within discount period, 2% discount taken (\$5,000 X 2% = \$100)</i> | | |

If payment is made *outside* the discount period, the entry is quite straightforward:

| | | | |
|----------|--|-------|-------|
| 11-29-X7 | <u>Accounts Payable</u> | 5,000 | |
| | <u>Cash</u> | | 5,000 |
| | <i>Paid outstanding payable outside of the discount period</i> | | |

NET RECORDING OF PURCHASES/DISCOUNTS LOST: Rather than recording purchases gross, a company may elect to record the same transaction under a **net method**. With this technique, the initial purchase is again recorded by debiting Purchases and crediting Accounts Payable, but only for the net amount of the purchase (the purchase less the available discount):

| | | | |
|---------|---|-------|-------|
| 11-5-X7 | <u>Purchases</u> | 4,900 | |
| | <u>Accounts Payable</u> | | 4,900 |
| | <i>Purchased \$5,000 of inventory on account, terms 2/10,n/30 (\$5,0000 - (\$5,000 X 2%) = \$4,900)</i> | | |

If payment is made *within* the discount period, the entry is quite straightforward because the payable was initially established at net of discount amount:

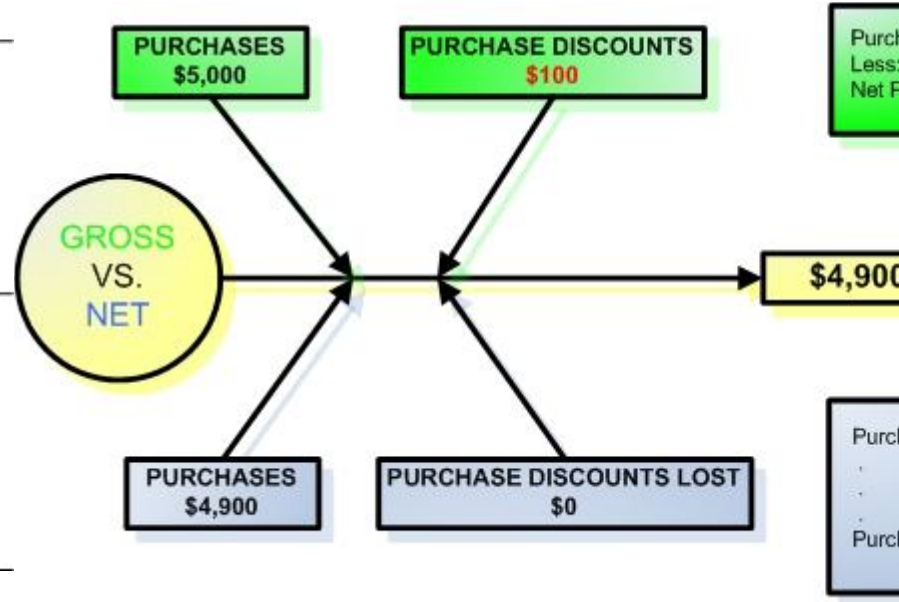
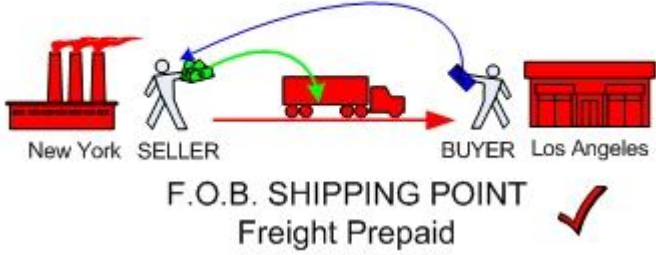
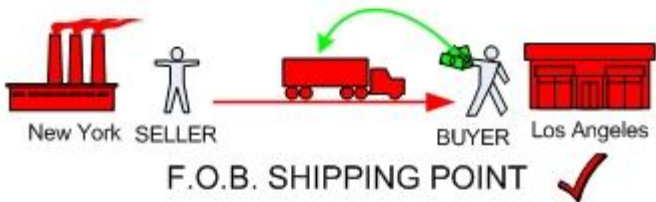
| | | | |
|----------|--|-------|-------|
| 11-13-X7 | <u>Accounts Payable</u> | 4,900 | |
| | <u>Cash</u> | | 4,900 |
| | <i>Paid outstanding payable within discount period</i> | | |

If payment is made *outside* the discount period, the lost discounts are recorded in a separate account. The Purchase Discounts Lost account is debited to reflect the added cost associated with missing out on the available discount amount:

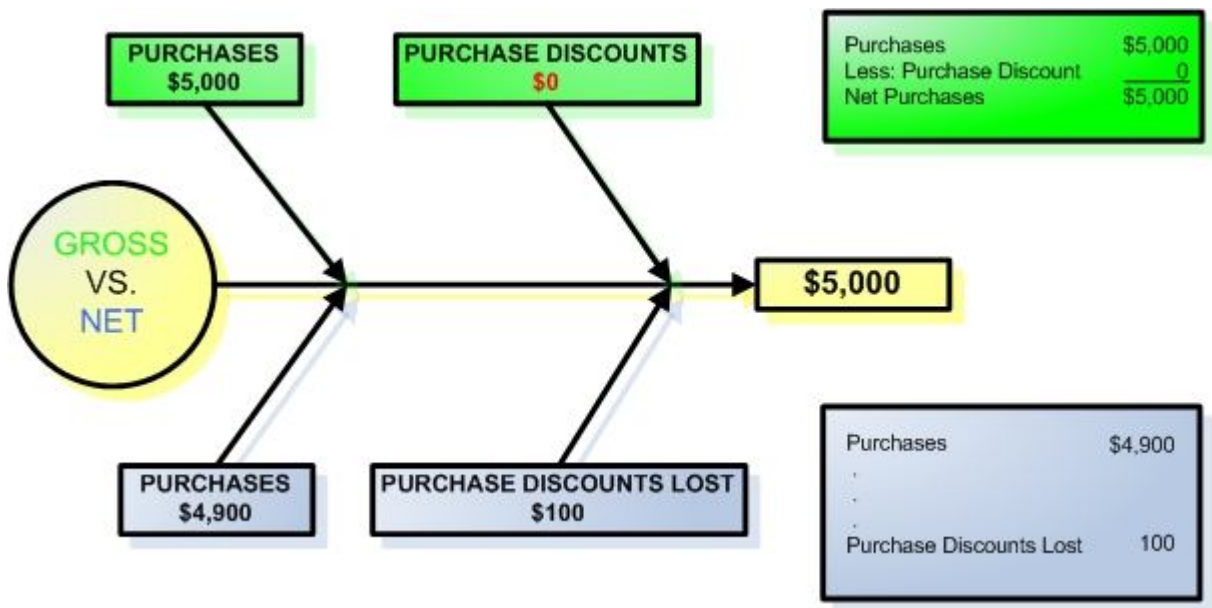
| | | | |
|----------|--|-------|-------|
| 11-29-X7 | <u>Accounts Payable</u> | 4,900 | |
| | <u>Purchase Discounts Lost</u> | 100 | |
| | <u>Cash</u> | | 5,000 |
| | <i>Paid outstanding payable outside of the discount period</i> | | |

COMPARISON OF GROSS VS. NET: In evaluating the gross and net methods, notice that the Purchase Discounts Lost account (used only with the net method) indicates the total amount of discounts missed during a particular period. The presence of this account draws attention to the fact that discounts are not being taken; frequently an unfavorable situation. The Purchase Discounts account (used only with the gross method) identifies the amount of discounts taken, but does not indicate if any discounts were missed. For reporting purposes, purchases discounts are subtracted from purchases to arrive at net purchases, while purchases discounts lost are recorded as an expense following the gross profit number for a particular period.

The following diagram contrasts the gross and net methods for a case *where the discount is taken*. Notice that \$4,900 is accounted for under each method. The Gross method reports the \$5,000 gross purchase, less the applicable discount. In contrast, the net method only shows the \$4,900 purchase amount.



The next diagram contrasts the gross and net methods for the case *where the discount is lost*. Notice that \$5,000 is accounted for under each method. The gross method simply reports the \$5,000 gross purchase, without any discount. In contrast, the net method shows purchases of \$4,900 and an additional \$100 charge pertaining to lost discounts.



FREIGHT CHARGES: A potentially significant inventory-related cost pertains to freight. The importance of considering this cost in any business transaction cannot be overstated. The globalization of commerce, rising energy costs, and the increasing use of overnight delivery via more expensive air transportation vehicles all contribute to high freight costs. Freight costs can easily exceed 10% of the value of a transaction. As a result, business negotiations relate not only

to matters of product cost, but must also include consideration of freight terms. Freight agreements are often described by abbreviations that describe the place of delivery, when the risk of loss shifts from the seller to the buyer, and who is to be responsible for the cost of shipping. One very popular abbreviation is F.O.B. This abbreviation stands for "free on board." Its historical origin apparently related to a seller's duty to place goods on some shipping vessel without charge to the buyer. Whether that historical explanation is exactly correct or not is unclear. What is important to know is that F.O.B. terms are common jargon in the shipping trade.

The F.O.B. point is normally understood to represent the place where ownership of goods transfers. Along with shifting ownership comes the responsibility for the purchaser to assume the risk of loss, a duty to pay for the goods, and the understanding that freight costs beyond the F.O.B. point will be borne by the purchaser.

In the drawing at left, notice that money is paid by the seller to the transport company in the top illustration. This is the case where the terms called for F.O.B. Destination -- the seller had to get the goods to the destination. This situation is reversed in the middle illustration: F.O.B. Shipping Point -- the buyer had to pay to get the goods delivered. The third illustration calls for the buyer to bear the freight cost (F.O.B. Shipping Point). However, the cost is prepaid to the trucker by the seller as an accommodation. Notice that the buyer then sends a check (in blue) to the seller to reimburse for the prepaid freight; ultimately the buyer is still bearing the freight cost. Of course, other scenarios are possible. For example, terms could be F.O.B. St. Louis, in which case the seller would pay to get the goods from New York to St. Louis, and the buyer would pay to bring the goods from St. Louis to Los Angeles.

Take a moment and look at the invoice presented earlier in this chapter for Barber Shop Supply. You will notice that the seller was in Chicago and the purchaser was in Dallas. Just to the right of the invoice date, you will note that the terms were F.O.B. Dallas. This means that Barber Shop Supply is responsible for getting the goods to the customer in Dallas. That is why the invoice included \$0 for freight; the purchaser was not responsible for the freight cost. Had the terms been F.O.B. Chicago, then Hair Port Landing would have to bear the freight cost; the cost might be added to the invoice by Barber Shop Supply if they prepaid the cost to a transportation company, or Hair Port might be expected to prepare a separate payment to the transport company. Next are presented appropriate journal entries to deal with alternative scenarios.

- If goods are sold *F.O.B. destination*, the seller is responsible for costs incurred in moving the goods to their destination. Freight cost incurred by the seller is called freight-out, and is reported as a selling expense that is subtracted from gross profit in calculating net income.

Seller's entry:

| | | | |
|---------|--|-------|-------|
| 5-11-X4 | Accounts Receivable | 7,000 | |
| | Freight-out | 400 | |
| | Cash | | 400 |
| | Sales | | 7,000 |
| | <i>Sold merchandise on account for \$7,000, terms F.O.B. destination, and paid the freight bill of \$400</i> | | |

Buyer's entry:

| | | | |
|---------|---|-------|-------|
| 5-11-X4 | Purchases | 7,000 | |
| | Accounts Payable | | 7,000 |
| | <i>Purchased \$7,000 of inventory, terms F.O.B. destination</i> | | |

- If goods are sold *F.O.B. shipping point*, the purchaser is responsible for paying freight costs incurred in transporting the merchandise from the point of shipment to its destination. Freight cost incurred by a purchaser is called freight-in, and is added to purchases in calculating net purchases:

Seller's entry:

| | | | |
|--------|---|-------|-------|
| 6-6-X4 | Accounts Receivable | 8,000 | |
| | Sales | | 8,000 |
| | <i>Sold merchandise on account for \$8,000, terms F.O.B. shipping point</i> | | |

Buyer's entry:

| | | | |
|--------|---|-------|-------|
| 6-6-X4 | Purchases | 8,000 | |
| | Freight-in | 1,500 | |
| | Cash | | 1,500 |
| | Accounts Payable | | 8,000 |
| | <i>Purchased \$8,000 of inventory, terms F.O.B. shipping point, and paid the shipping freight bill of \$1,500</i> | | |

- If goods are sold *F.O.B. shipping point, freight prepaid*, the seller prepays the trucking company as an accommodation to the purchaser. This prepaid freight increases the accounts receivable of the seller. That is, the seller expects payment for the merchandise and a reimbursement for the freight. The purchaser would record this transaction by debiting Purchases for the amount of the purchase, debiting Freight-In for the amount of the freight, and crediting Accounts Payable for the combined amount due to the seller.

Seller's entry:

| | | | |
|---------|---|--------|--------|
| 3-10-X8 | Accounts Receivable | 10,400 | |
| | Cash | | 400 |
| | Sales | | 10,000 |
| | <i>Sold merchandise on account for \$10,000, terms F.O.B. shipping point, \$400 freight prepaid</i> | | |

Buyer's entry:

| | | | |
|---------|---------------------------|--------|--|
| 3-10-X8 | Purchases | 10,000 | |
|---------|---------------------------|--------|--|

| | | |
|---------------------------------|------------------|---------------------------|
| Add: Purchases | | \$ 400,000 |
| Freight-in | | <u>40,000</u> |
| | | \$ 440,000 |
| Less: Purchase discounts | \$ 6,000 | |
| Purchase returns & allowances | <u>14,000</u> | <u>20,000</u> |
| Net purchases | | <u>\$ 420,000</u> |
| Beginning inventory, Jan. 1 | \$ 115,000 | ← FROM END OF PRIOR YEAR |
| Plus: Net purchases | <u>420,000</u> | ← FROM CALCULATIONS ABOVE |
| Goods available for sale | \$ 535,000 | |
| Less: Ending inventory, Dec. 31 | <u>91,000</u> | ← FROM PHYSICAL COUNT |
| Cost of goods sold | <u>\$444,000</u> | |

| | |
|--|--------|
| Freight-in | 400 |
| Accounts Payable | 10,400 |
| <i>Purchased merchandise on account for \$10,000, terms F.O.B. shipping point, \$400 freight prepaid</i> | |

Importantly, cash discounts for prompt payment are not usually available on the freight charges. For example, if there was a 2% discount on the above purchase, it would amount to \$200 (\$10,000 X 2%), not \$208 (\$10,400 X 2%).

THE CALCULATION OF NET PURCHASES: A number of new accounts have been introduced in this chapter. Purchases, Purchase Returns and Allowances, Purchase Discounts, and Freight-in have all been illustrated. Each of these accounts is necessary to calculate the "net purchases" during a period.

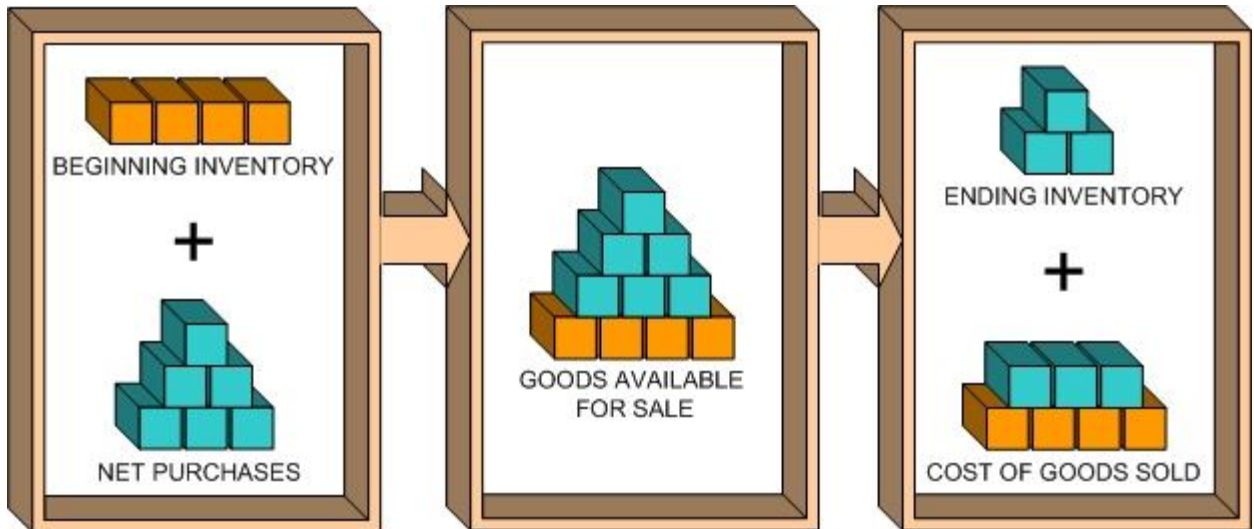
Notice that the table at right reveals total purchases of \$400,000 during the period. This would be based on the total invoice amount for all goods purchased during the period, as identified from the Purchases account in the ledger. The cost of the purchases is increased for the freight-in costs. Purchase discounts and purchase returns and allowances are subtracted. The result is that the "net purchases" are \$420,000. Net purchases reflect the actual costs that were deemed to be ordinary and necessary to bring the goods to their location for resale to an end customer. Importantly, storage costs, insurance, interest and other similar costs are considered to be period costs that are not attached to the product. Instead, those ongoing costs are simply expensed in the period incurred as an operating expense of the business.

COST OF GOODS SOLD: Early in this chapter, it was indicated that the cost of purchases must ultimately be allocated between cost of goods sold and inventory, depending on the portion of the purchased goods that have been resold to end customers. This allocation must also take into consideration any beginning inventory that was carried over from prior periods.

Very simply, goods that remain unsold at the end of an accounting period should not be "expensed" as cost of goods sold. Therefore, the calculation of **cost of goods sold** requires an assessment of total goods available for sale, from which ending inventory is subtracted.

With a periodic system, the ending inventory is determined by a *physical count*. In that process, the goods held are actually counted and assigned cost based on a consistent method. The actual methods for assigning cost to ending inventory is the subject of considerable discussion in the inventory chapter. For now, let's just take it as a given that the \$91,000 shown represents the cost of ending inventory.

Understanding the allocation of costs to ending inventory and cost of goods sold is very important and is worthy of additional emphasis. Consider the following diagram:



The beginning inventory is equal to the prior year's ending inventory, as determined by reference to the prior year's ending balance sheet. The net purchases is extracted from this year's ledger (i.e., the balances of Purchases, Freight-in, Purchase Discounts, and Purchase Returns & Allowances). Goods available for sale is just the sum of beginning inventory and net purchases. **Goods available for sale** is not an account, per se; it is merely an abstract result from adding two amounts together. Now, the total cost incurred (cost of goods available for sale) must be "allocated" according to its nature at the end of the year -- if the goods are still held, those costs become an asset amount (inventory), and to the extent the goods are not still held, those costs are attributed to the cost of goods sold expense category.

DETAILED INCOME STATEMENT FOR MERCHANDISE OPERATION: Wow, what a lot of activity to consider -- net sales, net purchases, cost of sales, gross profit, etc.! How do you keep all this straight? A detailed income statement provides the necessary organization of data in an understandable format. Study the following detailed income statement for Bill's Sporting Goods. As you do so, focus on the following points:

- Note the calculation of net sales
- Note the inclusion of the details about net purchases
- Note the cost of sales
- Note the gross profit amount
- Note that freight-out is reported in the expense section

| BILL'S SPORTING GOODS | | |
|--|---------------|-------------------|
| Detailed Income Statement | | |
| For the Year Ending December 31, 20X5 | | |
| Revenues | | |
| Sales | | \$ 750,000 |
| Less: Sales discounts | \$ 7,000 | |
| Sales returns & allowances | <u>3,000</u> | <u>10,000</u> |
| Net sales | | \$ 740,000 |
| Cost of goods sold | | |
| Beginning inventory, Jan. 1 | | \$ 115,000 |
| Add: Purchases | \$ 400,000 | |
| Freight-in | <u>40,000</u> | |
| | | \$ 440,000 |
| Less: Purchase discounts | \$ 6,000 | |
| Purchase returns & allowances | <u>14,000</u> | <u>20,000</u> |
| Net purchases | | 420,000 |
| Goods available for sale | | \$ 535,000 |
| Less: Ending inventory, Dec. 31 | | <u>91,000</u> |
| Cost of goods sold | | 444,000 |
| Gross profit | | \$ 296,000 |
| Expenses | | |
| Advertising | \$ 60,000 | |
| Freight-out | 32,000 | |
| Depreciation | 18,000 | |
| Utilities | 29,000 | |
| Salaries | 134,000 | |
| Rent | <u>12,000</u> | <u>285,000</u> |
| Net income | | \$ 11,000 |

| | |
|---------------------------------|--|
| Sales | |
| Less: Sales discounts | |
| Sales returns & allowances | |
| Net sales | |
| Add: Purchases | |
| Freight-in | |
| Less: Purchase discounts | |
| Purchase returns & allowances | |
| Net purchases | |
| Beginning inventory, Jan. 1 | |
| Net purchases | |
| Goods available for sale | |
| Less: Ending inventory, Dec. 31 | |
| Cost of goods sold | |
| Net sales | |
| Cost of goods sold | |
| Gross profit | |

Be aware that the income statement you see for a merchandising company may not present all of this detail. Depending on the materiality of the individual line items, it may be sufficient to only present line items for the key elements, like net sales, cost of sales, gross profit, various expense accounts, and net income.

CLOSING ENTRIES: Because of all the new income statement related accounts that were introduced for the merchandising concern, it is helpful to revisit the closing process. Recall the importance of closing; to transfer the net income to retained earnings, and reset the income statement accounts to zero in preparation for the next accounting period. As a result, all income statement accounts with a credit balance must be debited and vice versa. The closing entries for Bill's Sporting Goods appear as follows. The highlighted items are discussed below.

| | | |
|----------|------------------------------------|---------|
| 12-31-X5 | Sales | 750,000 |
| | Purchase Discounts | 6,000 |

| | | | |
|----------|--|---------|---------|
| | Purchase Returns & Allowances | 14,000 | |
| | Inventory | 91,000 | |
| | Income Summary | | 861,000 |
| | <i>To close income statement accounts with a credit balance, and establish ending inventory balance</i> | | |
| 12-31-X5 | Income Summary | 850,000 | |
| | Sales Discounts | | 7,000 |
| | Sales Returns & Allowances | | 3,000 |
| | Purchases | | 400,000 |
| | Freight-in | | 40,000 |
| | Advertising Expense | | 60,000 |
| | Freight-out | | 32,000 |
| | Depreciation Expense | | 18,000 |
| | Utilities Expense | | 29,000 |
| | Salaries Expense | | 134,000 |
| | Rent Expense | | 12,000 |
| | Inventory | | 115,000 |
| | <i>To close income statement accounts with a debit balance, and remove the beginning inventory balance</i> | | |
| 12-31-X5 | Income Summary | 11,000 | |
| | Retained Earnings | | 11,000 |
| | <i>To close Income Summary to retained earnings (note that the balance is equal to the net income)</i> | | |

These closing entries are a bit more complex than that from the earlier chapter. In particular, note that the closing includes all of the new accounts like purchases, discounts, etc. In addition, it is very important to update the inventory records. **You may be confused to see inventory being debited and credited in the closing process.** After all isn't inventory a balance sheet (real) account? And, don't we only close the temporary accounts? Why then is inventory included in the closing? The answer is that inventory must be updated to reflect the ending balance on hand. Remember that the periodic system resulted in a debit to purchases, not inventory. Further, as goods are sold, no entry is made to reduce inventory. Therefore, the Inventory account would continue to carry the beginning of year balance throughout the year. As a result, Inventory must be updated at the time of closing. The above entries accomplish just that objective by crediting/removing the beginning balance and debiting/establishing the ending balance. If you study these entries carefully, you will note that they include causing the Income Summary account to be reduced by the cost of sales amount (beginning inventory + net purchases - ending inventory).

ALTERNATIVE INVENTORY SYSTEM

PERPETUAL INVENTORY SYSTEMS: Earlier in the chapter this was stated:

"Now, there are two different techniques for recording the purchase -- depending on whether a periodic system or a perpetual system is in use. Generalizing, the periodic inventory system is easier to implement but is less robust than the "real-time" tracking available under a perpetual system. Conversely, the perpetual inventory system involves more "systemization" but is a far superior business management tool."

The periodic system only required the recording of inventory purchases to a Purchases account; inventory records were updated only during the closing process based on the results of a physical count. No attempt is made to adjust inventory records concurrent with actual purchase and sale transactions. The weakness of the periodic system is that it provides no real-time data about the levels of inventory or gross profit data. If inventory is significant, the lack of up-to-date inventory data can be very costly. Managers need to know what is selling, and what is not selling, in order to optimize business success. That is why many successful merchants use sophisticated computer systems to implement perpetual inventory management. You have no doubt noted bar code scanners at a checkout for quickly pricing goods, but did you know that the business's inventory records may also be updated as the item is being scanned? With a high-performance perpetual system, each purchase or sale results in an immediate update of the inventory and cost of sales data in the accounting system. The following entries are appropriate to record the purchase and subsequent resale of an inventory item:

Entry to record purchase of inventory:

| | | | |
|----------|--|-------|-------|
| 12-12-X1 | <u>Inventory</u> | 3,000 | |
| | <u>Accounts Payable</u> | | 3,000 |
| | <i>Purchased \$3,000 of inventory on account</i> | | |

Entries to record sale of inventory:

| | | | |
|----------|---|-------|-------|
| 12-21-X1 | <u>Accounts Receivable</u> | 5,000 | |
| | <u>Sales</u> | | 5,000 |
| | <i>Sold merchandise on account</i> | | |
| 12-21-X1 | <u>Cost of Goods Sold</u> | 3,000 | |
| | <u>Inventory</u> | | 3,000 |
| | <i>To record the cost of merchandise sold</i> | | |

With the perpetual system, the Purchases account is not needed. The Inventory account and Cost of Goods Sold account are constantly being adjusted as transactions occur. Freight-in is added to the Inventory account. Discounts and returns reduce the Inventory account. Therefore, the determination of cost of goods sold is determined by reference to the account's general ledger balance, rather than needing to resort to the calculations illustrated for the periodic system.

If you think the perpetual system looks easier, don't be deceived. Consider that it is no easy task to determine the cost of each item of inventory as it is sold, and that is required for a proper application of the perpetual system. In a large retail environment, that is almost impossible without a sophisticated computer system. Nevertheless, such systems have become

HUNTER COMPANY
Income Statement
For the Year Ending December 31, 20X9

| | | | |
|-------------------------------------|-----------|-----------|------------------|
| Revenues | | | |
| Sales | | | \$660,000 |
| Less: Sales discounts | \$ 5,000 | | |
| Sales returns & allowances | 2,000 | 7,000 | |
| Net sales | | | \$653,000 |
| Cost of goods sold | | | |
| Beginning inventory, Jan. 1 | | \$120,000 | |
| Add: Purchases | \$230,000 | | |
| Freight-in | 10,000 | | |
| | | \$240,000 | |
| Less: Purchase discounts | \$ 2,400 | | |
| Purchase returns & allowances | 3,600 | 6,000 | |
| Net purchases | | | 234,000 |
| Goods available for sale | | \$354,000 | |
| Less: Ending inventory, Dec. 31 | | 71,000 | |
| Cost of goods sold | | | 283,000 |
| Gross profit | | | \$370,000 |
| Selling expenses | | | |
| Advertising | \$ 70,000 | | |
| Freight-out | 4,000 | | |
| Depreciation | 28,000 | | |
| Utilities | 11,000 | | |
| Salaries | 29,000 | \$142,000 | |
| General & administrative | | | |
| Salaries | \$ 63,000 | | |
| Depreciation | 17,000 | | |
| Utilities | 22,000 | | |
| Insurance | 44,000 | | |
| Rent | 24,000 | 170,000 | |
| Other | | | |
| Loss on sale of land | \$ 2,000 | | |
| Interest expense | 7,000 | 9,000 | 321,000 |
| Income before tax | | | \$ 49,000 |
| Income tax expense | | | 10,000 |
| Net income | | | \$ 39,000 |

commonplace. This has come about with the decline in the cost of computers, along with a growth in "chain stores" that can apply the same technology to many individual stores.

One final point should be noted. A physical count of goods, where employees take to the store and count every item on hand, is still needed with a perpetual system. No matter how good the computer system, differences between the computer record and physical quantity on hand will arise. Differences are created by theft, spoilage, waste, errors, and so forth. Therefore, merchants must occasionally undertake a physical count, and adjust the Inventory accounts to reflect what is actually on hand.

**INCOME STATEMENT
 ENHANCEMENTS**

MULTIPLE-STEP

PRESENTATION: The expanded income statement for Bill's Sporting Goods was presented above. Yet, there are even more issues that can influence the form and shape of the income statement.

In the illustration for Bill's Sporting Goods, the operating expenses were all reported together. Often, companies will wish to further divide the expense items according to their nature: selling expenses (those associated with the sale of merchandise) or general and administrative (costs incurred in the management of the business). Some costs must be allocated between the two categories; like depreciation of the corporate headquarters wherein both sales and administrative activities are conducted.

A business may, from time to time, have incidental or peripheral transactions that contribute to income. For example, a business might sell land at a gain. Or, a fire might produce a loss. These gains and losses are often reported separate and apart from the measures of revenues and expenses associated with central ongoing operations.

Likewise, many businesses break out the financing costs (i.e., interest expense) from the other expense components. This tends to separate the operating impacts from the cost of capital needed to produce those operating results. This is not to suggest that interest is not a real cost. Instead, the company has made decisions about borrowing money ("leverage"), and breaking out the interest cost separately allows users to have a better handle on how well the borrowing

decisions are working -- investors want to know if enough extra income is being produced to cover the added financing costs associated with growing via debt financing.

Not to be overlooked in the determination of income is the amount of any tax that must be paid. Businesses are subject to many taxes, not the least of which is income tax. Income tax must be paid, and is usually based on complex formulas related to the amount of businesses income. As a result, it is customary to present income before tax, then the amount of tax, and finally the net income.

The income statement at right illustrates the added concepts via a **multiple-step income statement**. A multiple-step approach divides the businesses operating results into separate categories or steps, and simplifies the financial statement user's ability to understand the intricacy of an entity's operations. This illustration is fairly elaborate, but you also need to know that income reporting can become even more involved. In a subsequent chapter, you will learn about additional special reporting for other unique situations, like discontinued operations, extraordinary events, and so forth.

SINGLE-STEP PRESENTATION: Accountants must always be cognizant of the capacity of the financial statement user to review and absorb the reports. Sometimes, the accountant may decide that a simplified presentation is more useful. In those cases, the income statement may be presented in a "single-step" format. This very simple approach reports all revenues (and gains) together, and the aggregated expenses (and losses) are tallied and subtracted to arrive at income. The **single-step income statement** for Hunter is shown below:

| HUNTER COMPANY | | |
|--|------------|-------------------------|
| Income Statement | | |
| For the Year Ending December 31, 20X9 | | |
| Revenues | | |
| Net sales | | \$ 653,000 |
| Expenses and losses | | |
| Cost of goods sold | \$ 283,000 | |
| Selling expenses | 142,000 | |
| General & administrative | 170,000 | |
| Loss on sale of land | 2,000 | |
| Interest expense | 7,000 | 604,000 |
| Income before tax | | \$ 49,000 |
| Income tax expense | | 10,000 |
| Net income | | <u>\$ 39,000</u> |

Caution should be used when examining a single-step presentation. One should look at more than the bottom-line net income, and be certain to discern the components that make up income. For example, a company's core operations could be very weak, but the income could be good because of a non-recurring gain from the sale of assets. Tearing away such "masking" effects are a strong argument in favor of the more complex multiple-step approach.

ANALYSIS OF A DETAILED INCOME STATEMENT: No matter which income statement format is used, all the detail in the world is of no value if it is not carefully evaluated. One should monitor



not only absolute dollar amounts, but should also pay close attention to ratios and percentages. It is typical to monitor the gross profit margin and the net profit on sales:

Gross Profit Margin = Gross Profit/Net Sales

\$370,000/\$653,000 = 56.66% for Hunter

Net Profit on Sales = Net Income/Net Sales

\$39,000/\$653,000 = 5.97% for Hunter

There are countless variations of these calculations, but they all go to the same issue -- evaluating trends in performance unrelated to absolute dollar amounts.

You should also be aware that margins can be tricky. For example, suppose Liu's Janitorial Supply sold plastic trash cans. During Year 1, sales of cans were \$3,000,000, and these units cost \$2,700,000. During Year 2, oil prices dropped significantly. Oil is a critical component in plastics, and Liu passed along cost savings to his customers. Liu's Year 2 sales were \$1,000,000, and the cost of goods sold was \$700,000. Liu was very disappointed in the sales drop. However, he should not despair, as his gross profit was \$300,000 in each year, and the gross profit margin soared during Year 2. The gross profit margin in Year 1 was 10% (\$300,000/\$3,000,000), and the gross profit margin in Year 2 was 30% (\$300,000/\$1,000,000). Despite the plunge in sales, Liu may actually be better off. Although this is a dramatic example to make the point, even the slightest shift in business circumstances can change the relative relationships between revenues and costs. A smart manager or investor will always keep a keen eye on business trends revealed by the shifting of gross profit and net profit percentages over time.

THE CONTROL STRUCTURE

INTERNAL CONTROL: An organization should carefully define various measures to safeguard its assets, check the reliability and accuracy of accounting information, ensure compliance with management policies, and evaluate operating performance and efficiency. The internal control structure depends on the accounting system, the control environment, and the control procedures. The control environment is the combined effect of a firm's policies and attitudes toward control implementation. Control procedures are specifically integrated into the accounting system and relate to the following features:

- One important control is *limited access* to assets. This control feature assures that only authorized and responsible employees can obtain access to key assets. For example, a supplies stock area may be accessible only to department supervisors.
- *Separation of duties* is another important control. Activities like transaction authorization, transaction recording, and asset custody should be performed by different employees. Separating functions reduces the possibility of errors (because of cross-checking of accounting records to assets on hand, etc.) and fraud (because of the increased need for collusion among employees).
- A number of *accountability procedures* can be implemented to improve the degree of internal control:



- *Duty authorization* is a control feature which requires that certain functions be performed by a specific person (e.g., customer returns of merchandise for credit can be approved only by a sales manager).
- *Prenumbered documents* allow ready identification of missing items. For example, checks are usually prenumbered so that missing checks can be identified rapidly.
- *Independent verification of records* is another control procedure. Examples include comparing cash in a point of sale terminal with the sales recorded on that register and periodic reconciliation of bank accounts.
- A company may engage an accounting firm or CPA to provide an *independent review* of the company's accounting records and internal controls. The accountant may offer suggestions for improvement and test the established system to determine if it is functioning as planned.

In designing and implementing an internal control system, careful attention should be paid to the costs and benefits of the system. It is folly to develop a system which costs more to establish and maintain than it is worth to the company.

INTERNAL CONTROL IN THE MERCHANDISING ENVIRONMENT: The basic elements of control are common to most businesses. However, the merchandiser must pay special attention to several unique considerations. Foremost is asset control. Obviously, the retailer has a huge investment in inventory, and that inventory is not easily "isolated." As a result, theft and spoilage are all too common. Retailers should go to great lengths to protect against these costly events. Let's think, for a moment, about walking through an electronics retail store. Upon entering the front door, you may first notice "architecturally pleasing" barricades (like planter boxes or posts) to prevent crash entry. Next you may be greeted by a doorman (guard), who perhaps oversees separate entrances and exits, and is responsible for matching receipts to goods leaving the store. Of course, there is the ever-present sensor that will lock down the exit if a hidden sensor has not been deactivated at check out. And, a quick glance up reveals that you are on "candid" camera! As you stroll the store, you may note that the most expensive items are display only; to get the one you want to buy, you present a claim ticket at a caged area. Only authorized employees can enter that area. At check out, point-of-sale terminals must be accessed with a key that is assigned to an employee. The terminal knows who checked-out the sale. In addition, an employee may look inside the box that contains the item you are buying, compare you to your picture ID, and so forth. In general, the goal is simple -- make sure that only purchased merchandise gets out of the store. Several times daily, the cash drawers in the terminals will be pulled (replaced with another) and their contents audited. Daily bank runs (maybe via armored courier) will occur to make sure that funds are quickly and safely deposited in the bank. These controls are what you see on the "front end" of the business. Behind the scenes, a lot more is going on. Next, we will contemplate the purchasing cycle controls.

INTERNAL CONTROL AND THE PURCHASING CYCLE: Purchasing cycle controls are invisible to the customer, but every much as important. And, these purchasing controls are pervasive in other non-merchandising businesses as well. There is no single, correct process, but the following concepts should be considered:

- Purchases should be initiated only by appropriate supervisory personnel, in accord with budgets or other authorizing plans.
- The purchasing action should be undertaken by trained purchasing personnel who know how to negotiate the best terms (with full understanding of freight issues, discount issues, and so forth).

- Purchasing departments should have strong procedural rules, including prohibitions against employees receiving "gifts," limitations on dealings with related parties, and obtaining multiple bids.
- A *purchase order* should be prepared to initiate the actual order.
- When goods are received, the receiving department should not accept them without inspection, including matching the goods to an open purchase order to make sure that what is being delivered was in fact ordered.
- The receiving department should prepare a *receiving report*, indicating that goods have been received in good order.
- When an invoice ("bill") is received, it should be carefully matched to the original purchase order and receiving report. The bill should be scheduled for payment in time to take advantage of available discounts. It is important to only pay for goods that were ordered and received. In a large organization, the person preparing the check to pay the invoice has likely never seen the goods; hence the importance of complete documentation.
- Before payment is released, an independent supervisor should make one last review of all the documents -- the purchase order, the receiving report, and the check.

GENERALIZING ABOUT CONTROL: At this point in your study, most of your thought process has been directed toward procedural elements. The procedural aspects must be understood, of course, but accounting is so much more involved than that. Accountants will spend much of their time dealing with issues that are complex, like designing and testing the control environment! For example, an auditor does not just look at a bunch of transactions to see if the debits and credits are correct. Instead, they will carefully study the control environment and test to see if it is working as planned. If it is, then the "system" should be producing correct financial data, and much less time can be devoted to actually focusing on specific transactions.

There are control elements associated with virtually every accounting issue, and those will become ever more apparent as you move forward in your study of accounting. The next series of chapters delve into specific topical areas, following the normal balance sheet line up -- cash and highly liquid investments, receivables, inventories, and so forth. Those discussions focus less on debits and credits, and more on the business side of accounting.



principles of accounting.

[introduction](#) [chapters](#)

chapter 6

Cash and Highly-Liquid Investments

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "cash and highly-liquid investments" chapter are to learn about:

- [The composition of cash and how cash is presented on the balance sheet.](#)
- [Cash management and controls for receipts and disbursements.](#)
- [Reconciliation of bank accounts.](#)
- [The correct operation of a petty cash system.](#)
- [Accounting for highly-liquid investments known as "trading securities."](#)

DISCUSSION

CASH COMPOSITION

CASH: Given its liquid and vital status, cash is typically listed first within the current asset section of the balance sheet. But what exactly is cash? This may seem like a foolish question until one considers the possibilities. Obviously, **cash** includes coins and currency. But what about items like money on deposit in bank accounts, undeposited checks from customers, certificates of deposit, and similar items? Some of these are deemed to be cash and some are not. What rule shall be followed?

Generalizing, cash includes those items that are acceptable to a bank for deposit and are free from restrictions (i.e., available for use in satisfying current debts). Cash typically includes coins, currency, funds on deposit with a bank, checks, and money orders. Items like postdated checks, certificates of deposit, IOUs, stamps, and travel advances are typically not classified as cash. The existence of **compensating balances** (amounts that must be left on deposit and cannot be withdrawn) should be disclosed; if such amounts are very significant, they are reported separately from cash. Also receiving separate treatment are "sinking funds" (monies that must be set aside to satisfy debts) and heavily restricted foreign currency holdings (that cannot easily be converted into dollars). These unique categories of funds may be reported in the long-term investments category.

CASH EQUIVALENTS: In lieu of reporting "cash," some companies will report "cash and cash equivalents." **Cash equivalents** arise when companies place their cash in very short-term interest-earning financial instruments that are deemed to be highly secure and will convert back into cash within 90 days. Many short-term government-issued securities (e.g., treasury bills) meet these conditions. In addition, active markets exist for such securities, and these financial instruments are usually very marketable in the event the company needs access to funds in advance of maturity. Cash management strategies dictate that large amounts of cash not be held in "unproductive" accounts that do not generate interest income. As a result, surplus cash is

often invested in these instruments. Because of their unique nature, they are considered to be cash equivalents, and are often reported with cash on the balance sheet. Following is an excerpt from a recent balance sheet of the automotive division of General Motors Corporation. You will note that the company held over \$15 billion in cash:

Cash and cash equivalents (Note 1)

\$15,187

Note 1 to the financial statements included this additional commentary about cash:

Cash and Cash Equivalent

Cash equivalents are defined as short-term, highly-liquid investments with original maturities of 90 days or less.

CASH MANAGEMENT

PLANNING CASH FLOWS: It is very important to ensure that sufficient cash is available to meet obligations and to make sure that idle cash is appropriately invested to maximize the return to the company. One function of the company "treasurer" is to examine the cash flows of the business, and pinpoint anticipated periods of excess or deficit cash flows. A detailed cash budget is often maintained, and updated on a regular basis. The **cash budget** is a major component of a cash planning system and represents the overall plan of activity that depicts cash inflows and outflows for a stated period of time. A future chapter provides an in-depth look at cash budgeting.

You may tend to associate cash shortages as a sign of weakness, and, indeed, that may be true. However, such is not always the case. A very successful company with a great product or service may be rapidly expanding via new business locations, added inventory levels, growing receivables, and so forth. All of these events give rise to the need for cash and can create a real crunch even though the business is fundamentally prospering. To sustain the growth, careful planning must occur.



STRATEGIES TO ENHANCE CASH FLOWS:

As a business looks to improve cash management or add to the available cash supply, a number of options are available. Some of these solutions are "external" and some are "internal" in nature.

External solutions include:

Issuing additional shares of stock -- This solution has a definite advantage, because it allows the company to obtain cash, without a fixed obligation to repay. As a result, this may seem like a sure-fire costless option.

Unfortunately, the existing shareholders do incur a very real detriment, because the added share count dilutes their ownership proportions. In essence, it is akin to existing shareholders selling off part of the business; a solution that may be seen as a last resort if the future is bright.

Borrowing additional funds -- This solution brings no additional shareholders to the table, but borrowed funds must be repaid along with interest. Thus, the business cost and risk is increased. On a related note, many companies will establish a standing line of credit that enables

them to borrow as needed, and not borrow at all if funds are not needed. This solution provides a ready source of liquidity, without actually increasing debt levels. Banks typically provide such lines of credit in exchange for a fee based on the amount of the line of credit.

The company may look within its own operating structure to find internal cash flow enhancements:

Accelerate cash collections -- If a company can move its customer base to pay more quickly, a significant source of cash is found! Simple tools include electronic payment, credit cards, lockbox systems (i.e., the establishment of bank depositories near to the customer for quick access to funds/thereby avoiding mail and clearing delays), and cash discounts for prompt payment.

Postponement of cash outflows -- Companies may "drag their feet" on cash outflows, delaying payment as long as possible. In addition, paying via check sent through the mail allows use of the "float" to preserve cash on hand. However, you need to know that it is illegal to issue a check when there are insufficient funds in the bank to cover that item (even if you know a deposit is forthcoming that will cover the check). Some companies make travel advances to employees for anticipated costs to be incurred on an upcoming trip; it is better for cash flow to have the employee incur the cost (perhaps on a credit card) and then submit receipts for reimbursement.

Cash control -- Systems and procedures should be adopted to safeguard an organization's funds. Internal control for cash is based on the same general control features introduced in the previous chapter; access to cash should be limited to a few authorized personnel, incompatible duties should be separated, and accountability features (like prenumbered checks, etc.) should be developed.

- The control of receipts from cash sales should begin at the point of sale and continue through to deposit at the bank. Specifically, cash registers (or other point-of-sale terminals) should be used, actual cash on hand at the end of the day should be compared to register tapes, and daily bank deposits should be made. Any cash shortages or excesses should be identified and recorded in a Cash Short & Over account.
- Control of receipts from customers on account begins when payments are received (in the mail or otherwise). The person opening the mail should prepare a listing of checks received and forward the list to the accounting department. The checks are forwarded to a cashier who prepares a daily bank deposit. The accounting department enters the information from the listing of checks into the accounting records and compares the listing to a copy of the deposit slip prepared by the cashier.
- The controls over cash disbursements include procedures that allow only authorized payments for actual expenditures and maintenance of proper separation of duties. Control features include requiring that significant disbursements be made by check, performance of periodic bank reconciliations, proper utilization of petty cash systems, and verification of supporting documentation before disbursing funds.

The bank reconciliation and petty cash systems referred to above have specific accounting implications to consider, and are the subject of the following sections of this chapter.

BANK RECONCILIATION

BANK RECONCILIATION: One of the most common cash control procedures, and one which you may already be performing on your own checking account, is the **bank reconciliation**. In business, every bank statement should be promptly reconciled by a person not otherwise involved in the cash receipts and disbursements functions. The reconciliation is needed to identify errors, irregularities, and adjustments for the Cash account. Having an independent

person prepare the reconciliation helps establish separation of duties and deters fraud by requiring collusion for unauthorized actions.

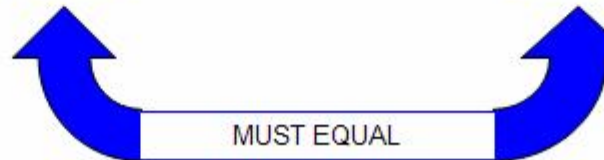
There are many different formats for the reconciliation process, but they all accomplish the same objective. The reconciliation compares the amount of cash shown on the monthly **bank statement** (the document received from a bank which summarizes deposits and other credits, and checks and other debits) with the amount of cash reported in the general ledger. These two balances will frequently differ. Differences are caused by *items reflected on company records but not yet recorded by the bank*; examples include **deposits in transit** (a receipt entered on company records but not processed by the bank) and **outstanding checks** (checks written which have not cleared the bank). Other differences relate to *items noted on the bank statement but not recorded by the company*; examples include nonsufficient funds (**NSF**) checks ("hot" checks previously deposited but which have been returned for nonpayment), bank service charges, notes receivable (like an account receivable, but more "formalized") collected by the bank on behalf of a company, and interest earnings.

The following format is typical of one used in the reconciliation process. Note that the balance per the bank statement is reconciled to the "correct" amount of cash; likewise, the balance per company records is reconciled to the "correct" amount. These amounts must agree. Once the correct adjusted cash balance is satisfactorily calculated, journal entries must be prepared for all items identified in the reconciliation of the ending balance per company records to the correct cash balance. These entries serve to record the transactions and events which impact cash but have not been previously journalized (e.g., NSF checks, bank service charges, interest income, and so on).

| DATE | DESCRIPTION | AMOUNT | BALANCE |
|-------|-----------------|----------|----------|
| 10/01 | OPENING BALANCE | 1,000.00 | 1,000.00 |
| 10/05 | DEPOSIT | 250.00 | 1,250.00 |
| 10/10 | DEPOSIT | 150.00 | 1,400.00 |
| 10/15 | DEPOSIT | 100.00 | 1,500.00 |
| 10/20 | DEPOSIT | 100.00 | 1,600.00 |
| 10/25 | DEPOSIT | 100.00 | 1,700.00 |
| 10/30 | DEPOSIT | 100.00 | 1,800.00 |
| 10/31 | ENDING BALANCE | | 1,800.00 |

| | |
|--|------------------------|
| Ending balance per bank statement | \$XX,XXX |
| Add: Deposits in transit (and similar receipts entered on company records but not yet reported on the bank statement) | X,XXX |
| Deduct: Outstanding checks (and similar disbursements entered on company records but not reported on the bank statement) | X,XXX |
| Correct cash balance | <u>\$XX,XXX</u> |

| | |
|--|------------------------|
| Ending balance per company records | \$XX,XXX |
| Add: Interest (and similar receipts reported on the bank statement but not entered on company records) | X,XXX |
| Deduct: NSF checks (and similar disbursements reported on the bank statement but not entered on company records) | X,XXX |
| Correct cash balance | <u>\$XX,XXX</u> |



COMPREHENSIVE ILLUSTRATION OF BANK RECONCILIATION: The following illustration provides a detailed example of a bank statement, additional data, the reconciliation process, and

the corresponding journal entries. Conducting a bank reconciliation requires careful attention to the slightest of details. Even the smallest error will lead to frustration in trying to bring closure to the reconciliation effort.

BANK STATEMENT

| LAKE CITY NAT'L BAN | | | | | |
|------------------------------------|---|-----------|----------|--------|-------------|
| 212 Golden Street, P.O. Box 64 | | | | | |
| THIS STATEMENT COVERS: | | | | | |
| JULY 1, 20X3 THROUGH JULY 31, 20X3 | | | | | |
| CHECKING ACCOUNT # | MONTHLY SUMMARY | | | | |
| 76-7888-0987 | PREVIOUS STATEMENT BALANCE ON 6-30-X3 | | | | |
| | TOTAL OF 4 DEPOSITS FOR | | | | |
| | TOTAL OF 16 WITHDRAWALS FOR | | | | |
| | INTEREST EARNINGS FOR | | | | |
| | SERVICE CHARGES FOR | | | | |
| | NEW BALANCE | | | | |
| CHECKS AND OTHER DEBITS | CHECK | DATE PAID | AMOUNT | CHECK | DATE PAID |
| | 5454 | 2-JUL | 4456.09 | *5465* | 16-JUL |
| | *5457* | 3-JUL | 245.00 | 5466 | 19-JUL |
| | 5458 | 3-JUL | 12.34 | 5467 | 23-JUL |
| | 5459 | 10-JUL | 66.14 | 5468 | 23-JUL |
| | 5460 | 5-JUL | 11998.20 | 5469 | 30-JUL |
| | 5461 | 9-JUL | 3000.00 | 5470 | 27-JUL |
| | *5463* | 16-JUL | 2119.44 | *5472* | 31-JUL |
| | ELECTRONIC FUNDS TRANFER | | | | 11-JUL |
| | NSF RETURNED CHECK | | | | 17-JUL |
| | NSF FEE | | | | 17-JUL |
| | MONTHLY SERVICE FEE | | | | 31-JUL |
| DEPOSITS AND OTHER CREDITS | | | | | DATE POSTED |
| | CUSTOMER DEPOSIT AT MAIN LOCATION | | | | 10-JUL |
| | CUSTOMER DEPOSIT AT RIVER BRANCH LOCATION | | | | 17-JUL |
| | COLLECTION ITEM -- NOTE RECEIVABLE | | | | 25-JUL |
| | CREDIT CARD POSTING - TRANSACTION 07E79849657 | | | | 25-JUL |
| | INTEREST EARNINGS | | | | 31-JUL |

ADDITIONAL DATA

The above bank statement is for The Tackle Shop for July of 20X3. The following additional data is needed to reconcile the account:

- The first check listed above, #5454, was written in June but did not clear the bank until July 2.
- There were no other outstanding checks, and no deposits in transit *at the end of June*.

- The EFT (electronic funds transfer) on July 11 relates to the monthly utility bill; The Tackle Shop has authorized the utility to draft their account directly each month.
- The Tackle Shop is optimistic that they will recover the full amount, including the service charge, on the NSF check ("hot check") that was given to them by a customer during the month.
- The bank collected a \$5,000 note for The Tackle Shop, plus 9% interest (\$5,450).
- The Tackle Shop's credit card clearing company remitted funds on July 25; the Tackle Shop received an email notification of this posting and simultaneously journalized this cash receipt in the accounting records.
- The Tackle Shop made the 2 deposits listed above, and an additional deposit of \$3,565.93 late in the afternoon on July 31, 20X3.
- The ending cash balance, per the company general ledger, was \$47,535.30.
- The following check register is maintained by The Tackle Shop, and it corresponds to the amounts within the Cash account in the general ledger:

| DATE | PARTY | REF # | CHECK | DEPOSIT | Balance |
|--------|-------------|---------|---------------------|---------------------|--------------|
| 1-Jul | | Balance | | | \$ 42,087.80 |
| 1-Jul | Bailey | 5457 | \$ 245.00 | | 41,842.80 |
| 2-Jul | Boyatzis | 5458 | 12.34 | | 41,830.46 |
| 3-Jul | Smith | 5459 | 66.14 | | 41,764.32 |
| 5-Jul | Blaize | 5460 | 11,998.20 | | 29,766.12 |
| 8-Jul | Paronto | 5461 | 3,000.00 | | 26,766.12 |
| 8-Jul | Void | 5462 | - | | 26,766.12 |
| 9-Jul | Deposit | | | \$ 12,994.36 | 39,760.48 |
| 15-Jul | Sanchez | 5463 | 2,119.44 | | 37,641.04 |
| 15-Jul | Bauer | 5464 | 525.00 | | 37,116.04 |
| 15-Jul | Cameron | 5465 | 85.58 | | 37,030.46 |
| 17-Jul | Deposit | | | 8,855.10 | 45,885.56 |
| 19-Jul | Hartman | 5466 | 1,199.19 | | 44,686.37 |
| 21-Jul | Ashkanasy | 5467 | 76.14 | | 44,610.23 |
| 22-Jul | Forest | 5468 | 375.62 | | 44,234.61 |
| 24-Jul | Augier | 5469 | 2,779.59 | | 41,455.02 |
| 24-Jul | Arbaugh | 5470 | 9.31 | | 41,445.71 |
| 25-Jul | Credit Card | | | 3,909.65 | 45,355.36 |
| 25-Jul | Bento | 5471 | 30.30 | | 45,325.06 |
| 30-Jul | Peterson | 5472 | 109.00 | | 45,216.06 |
| 30-Jul | Taggart | 5473 | 1,196.69 | | 44,019.37 |
| 30-Jul | Klimoski | 5474 | 50.00 | | 43,969.37 |
| 31-Jul | Deposit | | - | 3,565.93 | 47,535.30 |
| | | | <u>\$ 23,877.54</u> | <u>\$ 29,325.04</u> | |

BANK RECONCILIATION

The bank reconciliation for July is determined by reference to the above bank statement and other data. You must carefully study all of the above data to identify deposits in transit, outstanding checks, and so forth. Be advised that tracking down all of the reconciling items can be a rather tedious, sometimes frustrating, task. Modern bank statements facilitate this process by providing sorted lists with asterisks beside the check numbers that appear to have gaps in their sequence numbering. Below is the reconciliation of the balance per bank statement to the

| A | B | C | D |
|----|------------------------------------|---------------|---------------------|
| 16 | | | |
| 17 | Ending balance per company records | | \$ 47,535.30 |
| 18 | | | |
| 19 | | | |
| 20 | Add: Customer note collection | \$ 5,450.00 | |
| 21 | Interest earnings | <u>119.34</u> | 5,569.34 |
| 22 | | | |
| 23 | Deduct: | | |
| 24 | EFT for utilities | \$ 109.07 | |
| 25 | NSF check returned | 437.06 | |
| 26 | NSF fee | 25.00 | |
| 27 | Service charges | <u>30.00</u> | <u>(601.13)</u> |
| 28 | | | |
| 29 | | | |
| 30 | Correct cash balance | | <u>\$ 52,503.51</u> |

correct cash balance. You should try to identify each item in this reconciliation within the previously presented data. If you need help - [click here!](#)

| A | B | C | D |
|----|-----------------------------------|--------------|---------------------|
| 1 | | | |
| 2 | Ending balance per bank statement | | \$ 50,735.30 |
| 3 | | | |
| 4 | | | |
| 5 | Add: Deposits in transit | | 3,500.00 |
| 6 | | | |
| 7 | | | |
| 8 | Deduct: Outstanding checks | | |
| 9 | #5464 | \$ 525.00 | |
| 10 | #5471 | 30.30 | |
| 11 | #5473 | 1,196.69 | |
| 12 | #5474 | <u>50.00</u> | <u>(1,802.09)</u> |
| 13 | | | |
| 14 | | | |
| 15 | Correct cash balance | | <u>\$ 52,503.51</u> |

The reconciliation of the *balance per company records to the correct cash balance* is presented at left. This reconciliation will trigger various adjustments to the Cash account in the company ledger. If you need a little help finding the noted items, [click here](#). The identified items caused cash to increase by \$4,968.21 (\$52,503.51 correct balance, less the balance on the company records of \$47,535.30). Most of these amounts are fairly intuitive, except for the \$462.06 debit to Accounts Receivable -- which indicates that The Tackle Shop is going to attempt to collect on the NSF check and related charge. The interest income of \$569.34 reflects that posted by the bank (\$119.34) plus the \$450 on the collected note.

| | | |
|---------|--|----------|
| 7-31-X3 | Cash | 4,968.21 |
| | Utilities Expense | 109.07 |
| | Accounts Receivable | 462.06 |
| | Miscellaneous Expense | 30.00 |
| | Notes Receivable | 5,000.00 |
| | Interest Income | 569.34 |
| | <i>To record adjustments necessitated by bank reconciliation</i> | |

Even this fairly simple bank reconciliation demonstrates the pressing need for monthly reconciliations. Without a reconciliation, company records would soon become unreliable as the process draws attention to various needed adjustments.

PROOF OF CASH: Many a business prepares a reconciliation just like that above. But, you should note that it leaves one gaping hole in the control



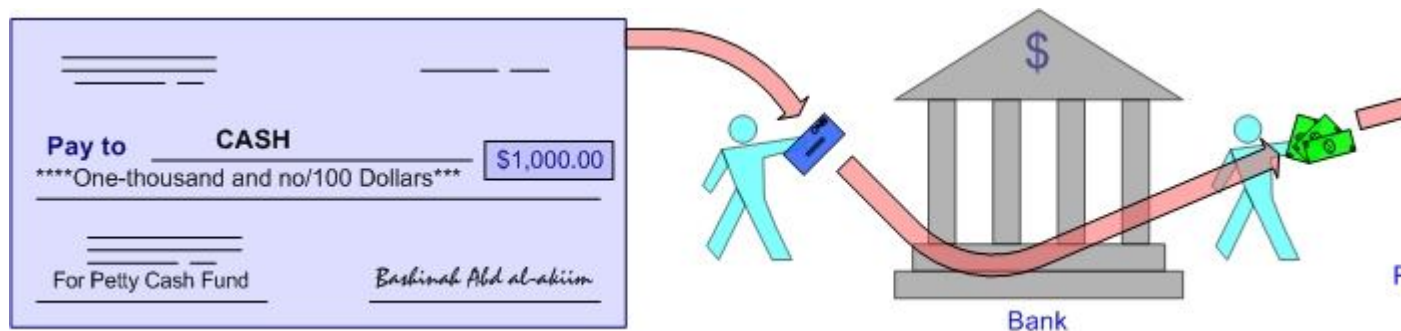


process. What if you learned that the bank statement included a \$5,000 check to an employee near the beginning of the month, and a \$5,000 deposit by that employee near the end of the month (and these amounts were not recorded on the company records)? In other words, the employee took out an unauthorized "loan" for a while. The reconciliation would not reveal this unauthorized activity because the ending balances are correct and in agreement. To overcome this deficiency, some companies will reconcile not only the beginning and ending balances, but also the total checks per the bank statement to the total disbursements per the company records, and the total deposits per the bank statement to the total receipts on the company accounts. If a problem exists, the totals on the bank statement will exceed the totals per the company records for both receipts and disbursements. This added reconciliation technique is termed a **proof of cash**. It is highly recommended where the volume of transactions and amount of money involved is very large. Such unauthorized "borrowing" not only steals company interest income, but it also presents a risk of loss if the company funds are not replaced. Make no mistake, such schemes are highly illegal!

Also illegal is "kiting." Kiting occurs when one opens numerous bank accounts at various locations and then proceeds to write checks on one account and deposit them to another. In turn, checks are written on that account, and deposited to yet another bank. And, over and over and over. In time, each of the bank accounts may appear to have money, but it is illusory, because there are numerous checks "floating" about that will hit and reduce the accounts. Somewhere in the process of running this scam, the crook makes off with a cash withdrawal (or writes a check that appears to be good to an unsuspecting merchant) and skips town. That is why you will often see bank notices that deposited funds cannot be withdrawn for several days; they have been burned once too often, and want to be sure that a deposit clears the bank on which it is drawn before releasing those funds. Now, the point of this discussion is not to give you any ideas -- but to alert you to be careful in your dealings with others. Kiting is complex and illegal, and many a person is "doing time" in jail for such dealings. Enhanced electronic clearing procedures adopted by banks in recent years have made kiting far more difficult to accomplish.

PETTY CASH

PETTY CASH: **Petty cash**, also known as *imprest cash*, is a fund established for making small payments that are impractical to pay by check. Examples include postage due, reimbursement to employees for small purchases of office supplies, and numerous similar items. The establishment of a petty cash system begins by making out a check to cash, cashing it, and placing the cash in a petty cash box:



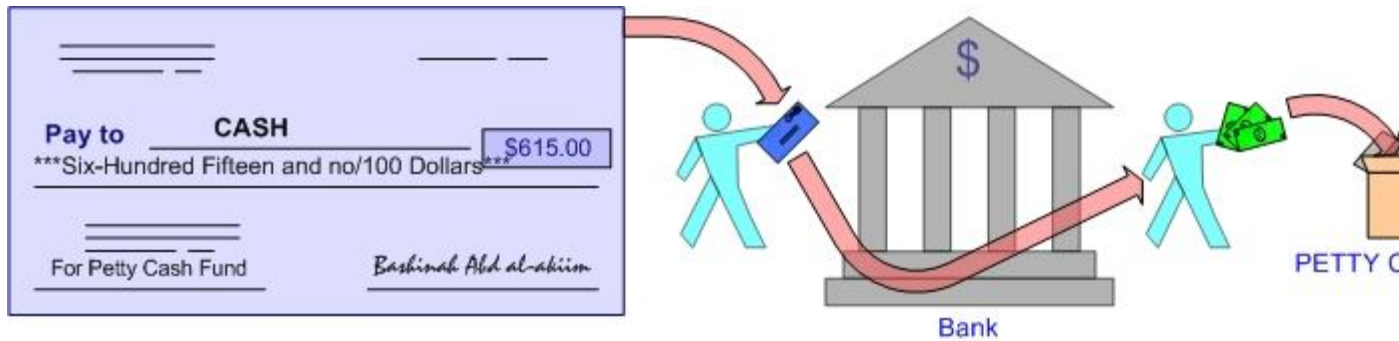
A petty cash custodian should be designated to have responsibility for safeguarding and making payments from this fund. At the time the fund is established, the following journal entry is needed. This journal entry, in essence, subdivides the petty cash portion of available funds into a separate account.



| | | | |
|---------|---|-------|-------|
| 1-31-X4 | <u>Petty Cash</u> | 1,000 | |
| | <u>Cash</u> | | 1,000 |
| | <i>To establish a \$1,000 petty cash fund</i> | | |

Policies should be established regarding appropriate expenditures (type and amount) that can be paid from petty cash. When a disbursement is made from the fund by the custodian, a receipt should always be placed in the petty cash box. The receipt should clearly set forth the amount and nature of expenditure. The receipts are sometimes known as petty cash vouchers. Therefore, at any point in time, the receipts plus the remaining cash should equal the balance of the petty cash fund (i.e., the amount of cash originally placed in the fund and recorded by the entry above).

REPLENISHMENT OF PETTY CASH: As expenditures occur, cash in the box will be depleted. Eventually the fund will require replenishment back to its original level. To replenish the fund, a check for cash is prepared in an amount to bring the fund back up to the desired balance. The check is cashed and the proceeds are placed in the petty cash box. At the same time, receipts are removed from the petty cash box and formally recorded as expenses.



The journal entry for this action involves debits to appropriate expense accounts as represented by the receipts, and a credit to Cash for the amount of the replenishment. Notice that the Petty Cash account is not impacted -- it was originally established as a base amount and its balance has not been changed by virtue of this activity.

| | | | |
|---------|--|-----|-----|
| 2-28-X4 | <u>Supplies Expense</u> | 390 | |
| | <u>Fuel Expense</u> | 155 | |
| | <u>Miscellaneous Expense</u> | 70 | |
| | <u>Cash</u> | | 615 |
| | <i>To replenish petty cash; receipts on hand of \$615 -- office supplies (\$390), gasoline (\$155), coffee and drinks (\$70). Remaining cash in the fund was \$385, bringing the total to \$1,000 (\$615 + \$385).</i> | | |

CASH SHORT AND OVER: Occasionally, errors will occur, and the petty cash fund will be out of balance. In other words, the sum of the cash and receipts differs from the correct Petty Cash balance. This might be the result of simple mistakes, such as math errors in making change, or perhaps someone failed to provide a receipt for an appropriate expenditure. Whatever the cause, the available cash must be brought back to the appropriate level. The journal entry to record full replenishment may require an additional debit (for shortages) or credit (for overages) to Cash



Short (Over). In the following entry, \$635 is placed back into the fund, even though receipts amount to only \$615. The difference is debited to Cash Short (Over):

| | | | | |
|---------|--|--|-----|-----|
| 2-28-X4 | <u>Supplies Expense</u> | | 390 | |
| | <u>Fuel Expense</u> | | 155 | |
| | <u>Miscellaneous Expense</u> | | 70 | |
| | <u>Cash Short (Over)</u> | | 20 | |
| | <u>Cash</u> | | | 635 |
| | <i>To replenish petty cash; receipts on hand of \$615 -- office supplies (\$390), gasoline (\$155), coffee and drinks (\$70). Remaining cash in the fund was \$365, bringing the total to \$980 (\$615 + \$365; a \$20 shortage was noted and replenished.</i> | | | |

The Cash Short (Over) account is an income statement type account. It is also applicable to situations other than petty cash. For example, a retailer will compare daily cash sales to the actual cash found in the cash register drawers. If a surplus or shortage is discovered, the difference will be recorded in Cash Short (Over); a debit balance indicates a shortage (expense), while a credit represents an overage (revenue). As a means of enforcing accountability, some companies may pressure employees to reimburse cash shortages.

INCREASING THE BASE FUND: As a company grows, it may find a need to increase the base size of its petty cash fund. The entry to increase the fund would be identical to the first entry illustrated above; that is, the amount added to the base amount of the fund would be debited to Petty Cash and credited to Cash. Otherwise, take note that the only entry to the Petty Cash account occurred when the fund was established -- subsequent reimbursements of the fund did not change the Petty Cash account balance.

TRADING SECURITIES

TRADING SECURITIES: From time to time a business may invest cash in stocks of other corporations. Or, a company may buy other types of corporate or government securities. Accounting rules for such investments depend on the "intent" of the investment. If these investments were acquired for long-term purposes, or perhaps to establish some form of control over another entity, the investments are classified as noncurrent assets. The accounting rules for those types of investments are covered in subsequent chapters. But, when the investments are acquired with the simple intent of generating profits by reselling the investment in the very near future, such investments are classified as current assets (following cash on the balance sheet). These investments are appropriately known as "**trading securities**."

Trading securities are initially recorded at cost (including brokerage fees). However, the value of these readily marketable items may fluctuate rapidly. Subsequent to initial acquisition, trading securities are to be reported at their fair value. The fluctuation in value is reported in the income statement as the value changes. This approach is often called "mark-to-market" or "**fair value**" accounting. Fair value is defined as the price that would be received from the sale of an asset in an orderly transaction between market participants.

AN ILLUSTRATION: Assume that Webster Company's management was seeing a pickup in their business activity, and believed that a similar uptick was occurring for its competitors as well. One of its competitors, Merriam Corporation, was a public company, and its stock was trading at \$10



excess cash earning very low rates of interest in Merriam -- intending to sell the future for a quick profit. The following entry was needed on March 3, 20X6, the day Webster bought stock of Merriam:

per share. Webster had interest, and decided to invest investment in the very near

| | | | |
|--|---------------------------|--------|--------|
| 3-3-X6 | <u>Trading Securities</u> | 50,000 | |
| | <u>Cash</u> | | 50,000 |
| <i>To record the purchase of 5,000 shares of Merriam stock at \$10 per share</i> | | | |

Next, assume that financial statements were being prepared on March 31. Despite Webster's plans for a quick profit, the stock declined to \$9 per share by March 31. Webster still believes in the future of this investment, and is holding all 5,000 shares. But, accounting rules require that the investment "be written down" to current value, with a corresponding charge against income. The charge against income is recorded in an account called Unrealized Loss on Investments:

| | | | |
|---|---------------------------------------|-------|-------|
| 3-31-X6 | <u>Unrealized Loss on Investments</u> | 5,000 | |
| | <u>Trading Securities</u> | | 5,000 |
| <i>To record a \$1 per share decrease in the value of 5,000 shares of Merriam stock</i> | | | |

Notice that the loss is characterized as "unrealized." This term is used to describe an event that is being recorded ("recognized") in the financial statements, even though the final cash consequence has not yet been determined. Hence, the term "unrealized."

April had the intended effect, and the stock of Merriam bounced up \$3 per share to \$12. Still Webster decided to hang on for more. At the end of April, another entry is needed if financial statements are again being prepared:

| | | | |
|---|---------------------------------------|--------|--------|
| 4-30-X6 | <u>Trading Securities</u> | 15,000 | |
| | <u>Unrealized Gain on Investments</u> | | 15,000 |
| <i>To record a \$3 per share increase in the value of 5,000 shares of Merriam stock</i> | | | |

Notice that the three journal entries now have the trading securities valued at \$60,000 (\$50,000 - \$5,000 + \$15,000). This is equal to their market value (\$12 X 5,000 = \$60,000). The income statement for March includes a loss of \$5,000, but April shows a gain of \$15,000. Cumulatively, the income statements show a total gain of \$10,000 (\$5,000 loss + \$15,000 gain). This cumulative gain corresponds to the total increase in value of the original \$50,000 investment.

The preceding illustration assumed a single investment. However, the treatment would be the same even if the trading securities consisted of a portfolio of many investments. That is, each and every investment would be adjusted to fair value.

RATIONALE FOR FAIR VALUE ACCOUNTING: The fair value approach is in stark contrast to the historical cost approach used for other assets like land, buildings, and equipment. The rationale is that the market value for trading securities is readily determinable, and the periodic fluctuations have a definite economic impact that should be reported. Given the intent to dispose of the investments in the near future, the belief is that the changes in value likely have a

corresponding effect on the ultimate cash flows of the company. As a result, the accounting rules recognize those changes as they happen.

ALTERNATIVE: A VALUATION ADJUSTMENTS ACCOUNT: As an alternative to directly adjusting the Trading Securities account, some companies may maintain a separate Valuation Adjustments account that is added to or subtracted from the Trading Securities account. The results are the same; the reason for using the alternative approach is to provide additional information that may be needed for more complex accounting and tax purposes. One such purpose is to determine the "taxable gain or loss" on sale. Tax rules generally require comparing the sales price to the original cost (you may be surprised to learn that tax rules sometimes differ from accounting rules -- the mark-to-market approach used for accounting is normally not acceptable for tax purposes). There are also more involved accounting rules relating to measurement of the "realized" gains and losses when the securities are in fact sold. Those rules are ordinarily the subject of more advanced courses.

DIVIDENDS AND INTEREST: Since trading securities are turned over rather quickly, the amount of interest and dividends received on those investments is probably not very significant. However, any dividends or interest received on trading securities is reported as income and included in the income statement:

| | | | |
|---------|---|----|----|
| 9-15-X5 | Cash | 75 | |
| | Dividend Income | | 75 |
| | <i>To record receipt of dividend on trading security investment</i> | | |

The presence or absence of dividends or interest on trading securities does not change the basic mark-to-market valuation for the Trading Securities account.

DERIVATIVES: Beyond the rather straight-forward investments in trading securities are an endless array of more exotic investment options. Among these are commodity futures, interest rate swap agreements, options related agreements, and so on. These investments are generally referred to as **derivatives**, because their value is based upon or derived from something else (e.g., a cotton futures contract takes its value from cotton, etc.). The underlying accounting approach follows that for trading securities. That is, such instruments are initially measured at fair value, and changes in fair value are recorded in income as they happen.



chapter 7

Accounts Receivable

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "receivables" chapter are to learn about:

- [The costs and benefits of selling on credit.](#)
- [Accounting considerations for uncollectible receivables.](#)
- [Alternative approaches to account for uncollectibles.](#)
- [Notes receivable and interest, including dishonored obligations.](#)

DISCUSSION

THE COSTS AND BENEFITS OF SELLING ON CREDIT

RECEIVABLES: You already know that receivables arise from a variety of claims against customers and others, and are generally classified as current or noncurrent based on expectations about the amount of time it will take to collect them. The majority of receivables are classified as **trade receivables**, which arise from the sale of products or services to customers. Such trade receivables are carried in the **Accounts Receivable** account. **Nontrade receivables** arise from other transactions and events, including advances to employees and utility company deposits.

CREDIT SALES: To one degree or another, many business transactions result in the extension of credit. Purchases of inventory and supplies will often be made on account. Likewise, sales to customers may directly (by the vendor offering credit) or indirectly (through a bank or credit card company) entail the extension of credit. While the availability of credit facilitates many business transactions, it is also costly. Credit providers must conduct investigations of credit worthiness, and monitor collection activities. In addition, the creditor must forego alternative uses of money while credit is extended. Occasionally, a creditor will get burned when the borrower refuses or is unable to pay. Depending on the nature of the credit relationship, some credit costs may be offset by interest charges. And, merchants frequently note that the availability of credit entices customers to make a purchase decision.

CREDIT CARDS: Banks and financial services companies have developed credit cards that are widely accepted by many merchants, and eliminate the necessity of those merchants maintaining separate credit departments. Popular examples include MasterCard, Visa, and American Express. These credit card companies earn money off of these cards by charging merchant fees (usually a formula-based percentage of sales) and assess interest and other charges against the users. Nevertheless, merchants tend to welcome their use because collection is virtually assured and very timely (oftentimes same day funding of the transaction is made by the credit card company). In addition, the added transaction cost is offset by a reduction in the internal costs associated with maintaining a credit department.

The accounting for credit card sales depends on the nature of the card. Some bank-card based transactions are essentially regarded as cash sales since funding is immediate. Assume that Bassam Abu Rayyan Company sold merchandise to a customer for \$1,000. The customer paid with a bank card, and the bank charged a 2% fee. Bassam Abu Rayyan Company should record the following entry:

| | | | |
|--------|---|-----|-------|
| 1-9-X3 | <u>Cash</u> | 980 | |
| | <u>Service Charge</u> | 20 | |
| | <u>Sales</u> | | 1,000 |
| | <i>Sold merchandise on "bank card;" same day funding, net of fee of 2% assessed by bank</i> | | |

Other card sales may involve delayed collection, and are initially recorded as credit sales:

| | | | |
|---------|--|-------|-------|
| 1-9-X3 | <u>Accounts Receivable</u> | 1,000 | |
| | <u>Sales</u> | | 1,000 |
| | <i>Sold merchandise on "nonbank card"</i> | | |
| 1-25-X3 | <u>Cash</u> | 980 | |
| | <u>Service Charge</u> | 20 | |
| | <u>Accounts Receivable</u> | | 1,000 |
| | <i>Collected amount due from credit card company; net of fee of 2%</i> | | |

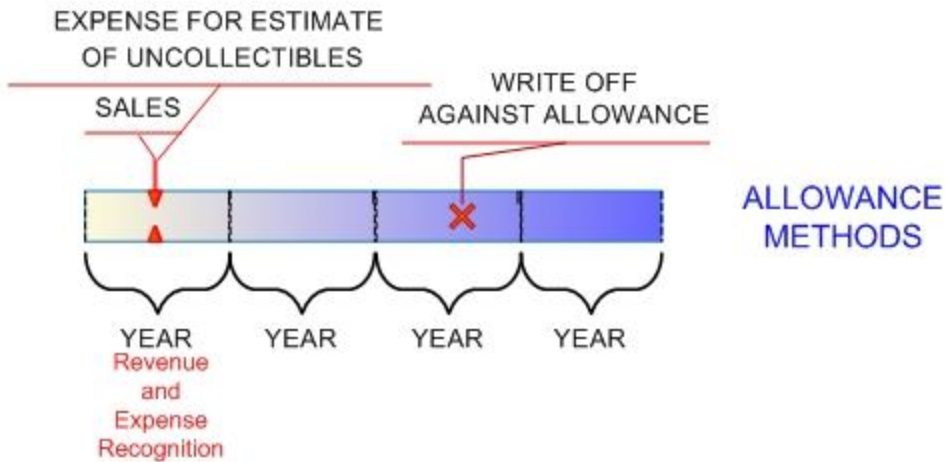
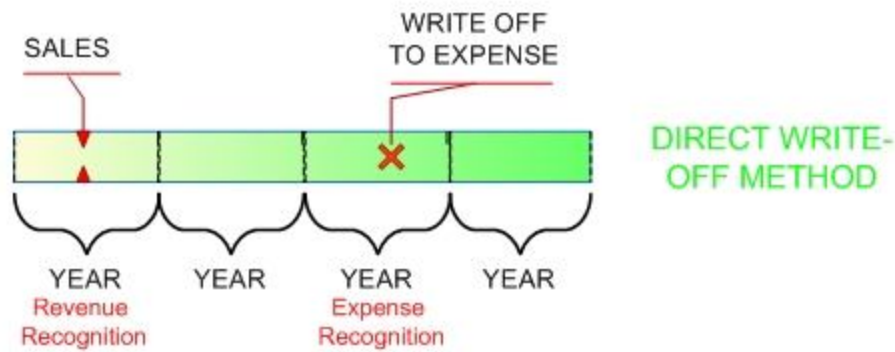
Notice that the entry to record the collection included a provision for the service charge. The estimated service charge could (or perhaps should) have been recorded at the time of the sale, but the exact amount might not have been known. Rather than recording an estimate, and adjusting it later, this illustration is based on the simpler approach of not recording the charge until collection occurs. This expedient approach is acceptable because the amounts involved are not very significant.

ACCOUNTING FOR UNCOLLECTIBLE RECEIVABLES

UNCOLLECTIBLE RECEIVABLES: Unfortunately, some sales on account may not be collected. Customers go broke, become unhappy and refuse to pay, or may generally lack the ethics to complete their half of the bargain. Of course, a company does have legal recourse to try to collect such accounts, but those often fail. As a result, it becomes necessary to establish an accounting process for measuring and reporting these uncollectible items. Uncollectible accounts are frequently called "bad debts."

DIRECT WRITE-OFF METHOD: A simple method to account for uncollectible accounts is the the **direct write-off** approach. Under this technique, a specific account receivable is removed from the accounting records *at the time it is finally determined to be uncollectible*. The appropriate entry for the direct write-off approach is as follows:





| | | | |
|---------|---|-----|-----|
| 2-10-X7 | Uncollectible Accounts Expense | 500 | |
| | Accounts Receivable | | 500 |
| | <i>To record the write off of an uncollectible account from Jones</i> | | |

Notice that the preceding entry reduces the receivables balance for the item that is deemed uncollectible. The offsetting debit is to an expense account: Uncollectible Accounts Expense.

While the direct write-off method is simple, it is only acceptable in those cases where bad debts are immaterial in amount. In accounting, an item is deemed material if it is large enough to affect the judgment of an informed financial statement user. Accounting expediency sometimes permits "incorrect approaches" when the effect is not material. Recall the discussion of nonbank credit card charges above; there, the service charge expense was recorded subsequent to the sale, and it was suggested that the approach was lacking but acceptable given the small amounts involved. Again, materiality considerations permitted a departure from the best approach. But, what is material? It is a matter of judgment, relating only to the conclusion that the choice among alternatives really has very little bearing on the reported outcomes.

You must now consider why the direct write-off method is not to be used in those cases where bad debts are material; what is "wrong" with the method? One important accounting principle is the notion of matching. That is, costs related to the production of revenue are reported during the same time period as the related revenue (i.e., "matched"). With the direct write-off method, you can well understand that many accounting periods may come and go before an account is finally determined to be uncollectible and written off. As a result, revenues from credit sales are recognized in one period, but the costs of uncollectible accounts related to those sales are not recognized until another subsequent period (producing an unacceptable mismatch of revenues and expenses).

To compensate for this problem, accountants have developed "allowance methods" to account for uncollectible accounts. Importantly, an allowance method must be used except in those cases

ITO COMPANY
Balance Sheet
December 31, 20X3

Assets

| | | | |
|------------------------------------|-----------------|----------------|--|
| ... | | | |
| Accounts receivable | \$425,000 | | |
| Less: Allowance for uncollectibles | <u>(25,500)</u> | <u>399,500</u> | |
| ... | | | |
| ... | | | |

where bad debts are not material (and for tax purposes where tax rules often stipulate that a direct write-off approach is to be used). Allowance methods will result in the recording of an estimated bad debts expense in the same period as the related credit sales. As you will soon see, the actual write off in a subsequent period will generally not impact income.

ALTERNATIVE APPROACHES FOR

UNCOLLECTIBLES

ALLOWANCE METHODS: Having established that an **allowance method for uncollectibles** is preferable (indeed, required in many cases), it is time to focus on the details. Let's begin with a consideration of the balance sheet. Suppose that Ito Company has total accounts receivable of \$425,000 at the end of the year, and is in the process of preparing a balance sheet. Obviously, the \$425,000 would be reported as a current asset. But, what if it is estimated that \$25,500 of this amount may ultimately prove to be uncollectible? Thus, a more correct balance sheet presentation would appear as shown at right:

The total receivables are reported, along with an allowance account (which is a contra asset account) that reduces the receivables to the amount expected to be collected. This anticipated amount to be collected is often termed the "**net realizable value.**"

DETERMINING THE ALLOWANCE ACCOUNT: In the preceding illustration, the \$25,500 was simply given as part of the fact situation. But, how would such an amount actually be determined? If Ito Company's management knew which accounts were likely to not be collectible, they would have avoided selling to those customers in the first place. Instead, the \$25,500 simply relates to the balance as a whole. It is likely based on past experience, but it is only an estimate. It could have been determined by one of the following techniques:

- **AS A PERCENTAGE OF TOTAL RECEIVABLES:** Some companies anticipate that a certain percentage of outstanding receivables will prove uncollectible. In Ito's case, maybe 6% ($\$425,000 \times 6\% = \$25,500$).
- **VIA AN AGING ANALYSIS:** Other companies employ more sophisticated **aging of accounts receivable** analysis. They will stratify the receivables according to how long they have been outstanding (i.e., perform an aging), and apply alternative percentages to the different strata. Obviously, the older the account, the more likely it is to represent a bad account. Ito's aging may have appeared as follows:

| | I | J | K | L |
|----|--------------|-------------------|------------------------------|--------------------------------------|
| | Age | Balance | Estimated % Uncollectible | Estimated Amount Uncollectible |
| 19 | | | | |
| 20 | Current | \$ 250,000 | 1% | \$ 2,500 |
| 21 | 31-60 days | 100,000 | 5% | 5,000 |
| 22 | 61-90 days | 50,000 | 15% | 7,500 |
| 23 | Over 90 days | 25,000 | 42% | 10,500 |
| 24 | | <u>\$ 425,000</u> | | <u>\$ 25,500</u> |
| 25 | | | | |

Both the *percentage of total receivables* and the *aging* are termed "*balance sheet approaches*." In both cases, the allowance account is determined by an analysis of the outstanding accounts receivable on the balance sheet. Once the estimated amount for the allowance account is determined, a journal entry will be needed to bring the ledger into agreement. Assume that Ito's ledger revealed an Allowance for Uncollectible Accounts credit balance of \$10,000 (prior to performing the above analysis). As a result of the analysis, it can be seen that a target balance of \$25,500 is needed; necessitating the following adjusting entry:

| | | | |
|----------|--|--------|--------|
| 12-31-X5 | <u>Uncollectible Accounts Expense</u> | 15,500 | |
| | <u>Allow. for Uncollectible Accounts</u> | | 15,500 |
| | <i>To adjust the allowance account from a \$10,000 balance to the target balance of \$25,500 (\$25,500 - \$10,000)</i> | | |

You should carefully note two important points: (1) with balance sheet approaches, the amount of the entry is based upon the needed change in the account (i.e., to go from an existing balance to the balance sheet target amount), and (2) the debit is to an expense account, reflecting the added cost associated with the additional amount of anticipated bad debts.

BALANCE
SHEET
APPROACHES

| | I | J | K | L |
|----|--------------|-------------------|------------------------------|--------------------------------------|
| | Age | Balance | Estimated % Uncollectible | Estimated Amount Uncollectible |
| 19 | | | | |
| 20 | Current | \$ 250,000 | 1% | \$ 2,500 |
| 21 | 31-60 days | 100,000 | 5% | 5,000 |
| 22 | 61-90 days | 50,000 | 15% | 7,500 |
| 23 | Over 90 days | 25,000 | 42% | 10,500 |
| 24 | | <u>\$ 425,000</u> | | <u>\$ 25,500</u> |
| 25 | | | | |

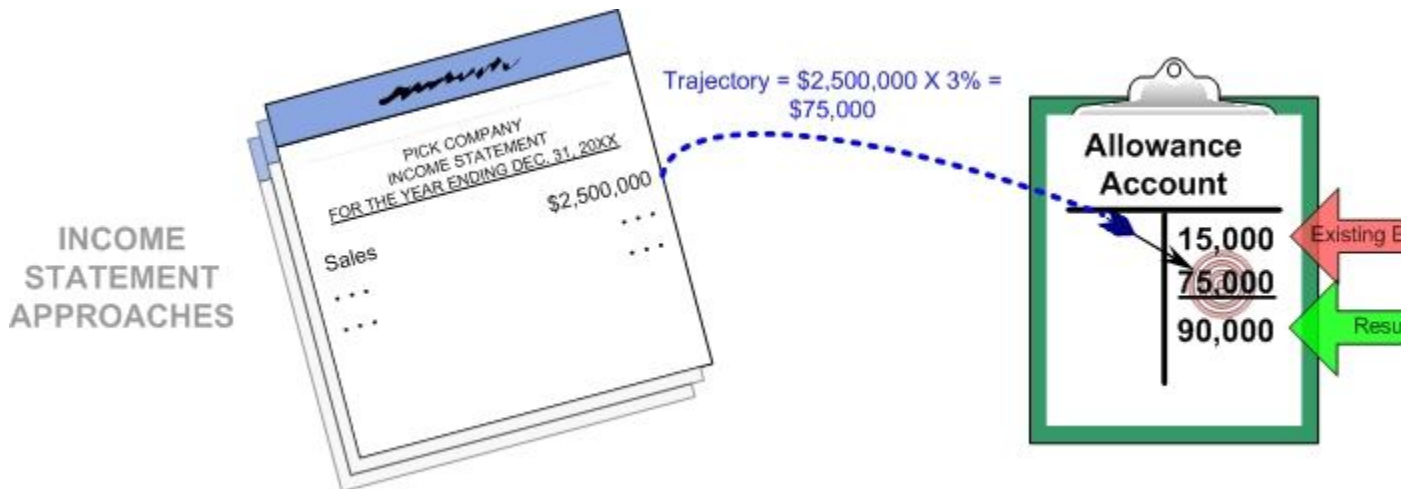
Trajectory = \$15,500

| Allowance Account | |
|-------------------|---------------|
| | 10,000 |
| | 15,500 |
| | <u>25,500</u> |

Rather than implement a balance sheet approach as above, some companies may follow a simpler *income statement approach*. With this equally acceptable allowance technique, an estimated percentage of sales (or credit sales) is simply debited to Uncollectible Accounts Expense and credited to the Allowance for Uncollectible Accounts each period. Importantly, this technique merely adds the estimated amount to the Allowance account. To illustrate, assume that Pick Company had sales during the year of \$2,500,000, and it records estimated uncollectible accounts at a rate of 3% of total sales. Therefore, the appropriate entry to record bad debts cost is as follows:

| | | | |
|----------|--|--------|--------|
| 12-31-X5 | <u>Uncollectible Accounts Expense</u> | 75,000 | |
| | <u>Allow. for Uncollectible Accounts</u> | | 75,000 |
| | <i>To add 3% of sales to the allowance account (\$2,500,000 X 3% = \$75,000)</i> | | |

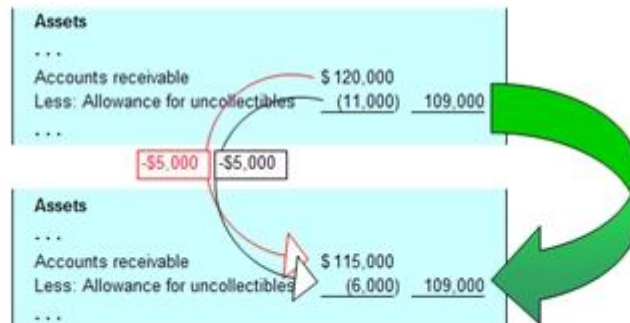
This entry would be the same even if there was already a balance in the allowance account. In other words, the income statement approach adds the calculated increment to the allowance, no matter how much may already be in the account from prior periods.



WRITING OFF UNCOLLECTIBLE ACCOUNTS: Now, we have seen how to record uncollectible accounts expense, and establish the related allowance. But, how do we write off an individual account that is determined to be uncollectible? This part is easy. The following entry would be needed to write off a specific account that is finally deemed uncollectible:

| | | | |
|---------|--|-------|-------|
| 3-15-X3 | <u>Allow. for Uncollectible Accounts</u> | 5,000 | |
| | <u>Accounts Receivable</u> | | 5,000 |
| | <i>To record the write-off of an uncollectible account from Aziz</i> | | |

Notice that the entry reduces both the allowance account and the related receivable, and has no impact on the income statement. Further, consider that the write-off has no impact on the net realizable value of receivables, as shown by the following illustration of a \$5,000 write-off:



BEFORE WRITE-OFF

AFTER WRITE-OFF

COLLECTION OF AN ACCOUNT PREVIOUSLY WRITTEN OFF: On occasion, a company may collect an account that was previously written off. For example, a customer that was once in dire financial condition may recover, and unexpectedly pay an amount that was previously written off. The entry to record the recovery involves two steps: (1) a reversal of the entry that was made to write off the account, and (2) recording the cash collection on the account:

| | | | |
|---------|---|-------|-------|
| 6-16-X6 | <u>Accounts Receivable</u> | 1,000 | |
| | <u>Allow. for Uncollectible Accounts</u> | | 1,000 |
| | <i>To reestablish an account previously written off via the reversal of the entry recorded at the time of write off</i> | | |
| 6-16-X6 | <u>Cash</u> | 1,000 | |
| | <u>Accounts Receivable</u> | | 1,000 |
| | <i>To record collection of account receivable</i> | | |

It may trouble you to see the allowance account being increased because of the above entries, but the general idea is that another as yet unidentified account may prove uncollectible (consistent with the overall estimates in use). If this does not eventually prove to be true, an adjustment of the overall estimation rates may eventually be indicated.

MATCHING ACHIEVED: Carefully consider that the allowance methods all result in the recording of estimated bad debts expense during the same time periods as the related credit sales. These approaches satisfy the desired matching of revenues and expenses.

MONITORING AND MANAGING ACCOUNTS RECEIVABLE: A business must carefully monitor its accounts receivable. This chapter has devoted much attention to accounting for bad debts; but, don't forget that it is more important to try to avoid bad debts by carefully monitoring credit policies. A business should carefully consider the credit history of a potential credit customer, and be certain that good business practices are not abandoned in the zeal to make sales. It is customary to gather this information by getting a credit application from a customer, checking out credit references, obtaining reports from credit bureaus, and similar measures. Oftentimes, it



becomes necessary to secure payment in advance or receive some other substantial guarantee such as a letter of credit from an independent bank. All of these steps are normal business practices, and no apologies are needed for making inquiries into the creditworthiness of potential customers. Many countries have very liberal laws that make it difficult to enforce collection on customers who decide not to pay or use "legal maneuvers" to escape their obligations. As a result, businesses must be very careful in selecting parties that are allowed trade credit in the normal course of business.

Equally important is to monitor the rate of collection. Many businesses have substantial dollars tied up in receivables, and corporate liquidity can be adversely impacted if receivables are not actively managed to insure timely collection. One ratio that is often monitored is the accounts receivable turnover ratio. That number reveals how many times a firm's receivables are converted to cash during the year. It is calculated as net credit sales divided by average net accounts receivable:

$$\text{Accounts Receivable Turnover Ratio} = \text{Net Credit Sales} / \text{Average Net Accounts Receivable}$$

To illustrate these calculations, assume Shoztic Corporation had annual net credit sales of \$3,000,000, beginning accounts receivable (net of uncollectibles) of \$250,000, and ending accounts receivable (net of uncollectibles) of \$350,000. Shoztic's average net accounts receivable is \$300,000 $((\$250,000 + \$350,000)/2)$, and the turnover ratio is "10":

$$10 = \$3,000,000 / \$300,000$$

A closely related ratio is the "days outstanding" ratio. It reveals how many days sales are carried in the receivables category:

$$\text{Days Outstanding} = 365 \text{ Days} / \text{Accounts Receivable Turnover Ratio}$$

For Shoztic, the days outstanding calculation is:

$$36.5 = 365 / 10$$

By themselves, these numbers mean little. But, when compared to industry trends and prior years, they will reveal important signals about how well receivables are being managed. In addition, the calculations may provide an "early warning" sign of potential problems in receivables management and rising bad debt risks. Analysts carefully monitor the days outstanding numbers for signs of weakening business conditions. One of the first signs of a business downturn is a delay in the payment cycle. These delays tend to have ripple effects; if a company has trouble collecting its receivables, it won't be long before it may have trouble paying its own obligations.

NOTES RECEIVABLE

NOTES RECEIVABLE: A written promise from a client or customer to pay a definite amount of money on a specific future date is called a **note receivable**. Such notes can arise from a variety of circumstances, not the least of which is when credit is extended to a new customer with no formal prior credit history. The lender uses the note to make the loan more formal and enforceable. Such notes typically bear interest charges. The **maker** of the note is the party promising to make payment, the **payee** is the party to whom payment will be made, the **principal** is the stated amount of the note, and the **maturity date** is the day the note will be due.

Interest is the charge imposed on the borrower of funds for the use of money. The specific amount of interest depends on the size, rate, and duration of the note. In mathematical form: Interest = Principal X Rate X Time. For example, a \$1,000, 60-day note, bearing interest at 12% per year, would result in interest of \$20 ($\$1,000 \times 12\% \times 60/360$). In this calculation, notice that the "time" was 60 days out of a 360 day year. Obviously, a year normally has 365 days, so the fraction could have been 60/365. But, for simplicity, it is not uncommon for the interest calculation to be based on a presumed 360-day year or 30-day month. This presumption probably has its roots in olden days before electronic calculators, as the resulting interest calculations are much easier with this assumption in place. But, with today's technology, there is little practical use for the 360 day year, except that it tends to benefit the creditor by producing a little higher interest amount -- *caveat emptor* (*Latin for "let the buyer beware"*)! The following illustrations will preserve this archaic approach with the goal of producing nice round numbers that are easy to follow.

ACCOUNTING FOR NOTES RECEIVABLE: To illustrate the accounting for a note receivable, assume that Butchko initially sold \$10,000 of merchandise on account to Hewlett. Hewlett later requested more time to pay, and agreed to give a formal three-month note bearing interest at 12% per year. The entry to record the conversion of the account receivable to a formal note is as follows:

| | | | |
|--------|---|--------|--------|
| 6-1-X8 | <u>Notes Receivable</u> | 10,000 | |
| | <u>Accounts Receivable</u> | | 10,000 |
| | <i>To record conversion of an account receivable to a note receivable</i> | | |

When the note matures, Butchko's entry to record collection of the **maturity value** would appear as follows:

| | | | |
|---------|--|--------|--------|
| 8-31-X8 | <u>Cash</u> | 10,300 | |
| | <u>Interest Income</u> | | 300 |
| | <u>Notes Receivable</u> | | 10,000 |
| | <i>To record collection of note receivable plus accrued interest of \$300 ($\\$10,000 \times 12\% \times 90/360$)</i> | | |

A DISHONORED NOTE: If Hewlett **dishonored the note** at maturity (i.e., refused to pay), then Butchko would prepare the following entry:

| | | | |
|---------|--|--------|--------|
| 8-31-X8 | <u>Accounts Receivable</u> | 10,300 | |
| | <u>Interest Income</u> | | 300 |
| | <u>Notes Receivable</u> | | 10,000 |
| | <i>To record dishonor of note receivable plus accrued interest of \$300 ($\\$10,000 \times 12\% \times 90/360$)</i> | | |

The debit to Accounts Receivable in the above entry reflects the hope of eventually collecting all amounts due, including the interest, from the dishonoring party. If Butchko anticipated some

difficulty in collecting the receivable, appropriate allowances would be established in a fashion similar to those illustrated earlier in the chapter.

NOTES AND ADJUSTING ENTRIES: In the above illustrations for Butchko, all of the activity occurred within the same accounting year. However, if Butchko had a June 30 accounting year end, then an adjustment would be needed to reflect accrued interest at year-end. The appropriate entries illustrate this important accrual concept:

Entry to set up note receivable:

| | | | |
|--------|---|--------|--------|
| 6-1-X8 | <u>Notes Receivable</u> | 10,000 | |
| | <u>Accounts Receivable</u> | | 10,000 |
| | <i>To record conversion of an account receivable to a note receivable</i> | | |

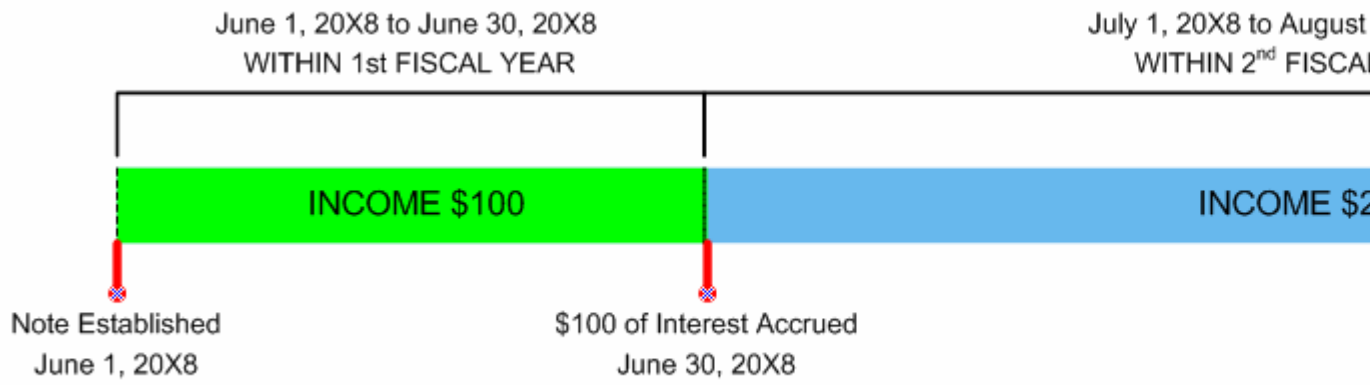
Entry to accrue interest at June 30 year end:

| | | | |
|---------|--|-----|-----|
| 6-30-X8 | <u>Interest Receivable</u> | 100 | |
| | <u>Interest Income</u> | | 100 |
| | <i>To record accrued interest at June 30 (\$10,000 X 12% X 30/360 = \$100)</i> | | |

Entry to record collection of note (including amounts previously accrued at June 30):

| | | | |
|---------|--|--------|--------|
| 8-31-X8 | <u>Cash</u> | 10,300 | |
| | <u>Interest Income</u> | | 200 |
| | <u>Interest Receivable</u> | | 100 |
| | <u>Notes Receivable</u> | | 10,000 |
| | <i>To record collection of note receivable plus interest of \$300 (\$10,000 X 12% X 90/360); \$100 of the total interest had been previously accrued</i> | | |

The following drawing should aid your understanding of these entries:





chapter 8

Inventory

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "inventory" chapter are to learn about:

- [The correct components to include in inventory.](#)
- [Inventory costing methods, including specific identification, FIFO, LIFO, and weighted-average techniques.](#)
- [The perpetual system for valuing inventory.](#)
- [Lower-of-cost-or-market inventory valuation adjustments.](#)
- [Two inventory estimation techniques: the gross profit and retail methods.](#)
- [Inventory management and monitoring methods, including the inventory turnover ratio.](#)
- [The impact of inventory errors.](#)

DISCUSSION

THE COMPONENTS OF INVENTORY

CATEGORIES OF INVENTORY: You have already seen that inventory for a merchandising business consists of the goods available for resale to customers. However, retailers are not the only businesses that maintain inventory. Manufacturers also have inventories related to the goods they produce. Goods completed and awaiting sale are termed "finished goods" inventory. A manufacturer may also have "work in process" inventory consisting of goods being manufactured but not yet completed. And, a third category of inventory is "raw material," consisting of goods to be used in the manufacture of products. Inventories are typically classified as current assets on the balance sheet. A substantial portion of the managerial accounting chapters of this book deal with issues relating to accounting for costs of manufactured inventory. For now, we will focus on general principles of inventory accounting that are applicable to most all enterprises.

DETERMINING WHICH GOODS TO INCLUDE IN INVENTORY: Recall from the merchandising chapter the discussion of freight charges. In that chapter, F.O.B. terms were introduced, and the focus was on which party would bear the cost of freight. But, F.O.B. terms also determine when goods are (or are not) included in inventory. Technically, goods in transit belong to the party holding legal ownership. Ownership depends on the F.O.B. terms. Goods sold F.O.B. destination do not belong to the purchaser until they arrive at their final destination. Goods sold F.O.B. shipping point become property of the purchaser once shipped by the seller. Therefore, when determining the amount of inventory owned at year end, **goods in transit** must be considered in light of the F.O.B. terms. In the case of F.O.B. shipping point, for instance, a buyer would need to include as inventory the goods that are being transported but not yet received.



CONSIGNEE IN THE INVENTORY OF THE CONSIGNOR

The diagram at right is meant to show who includes goods in transit, with ownership shifting at the F.O.B. point noted with a "flag."

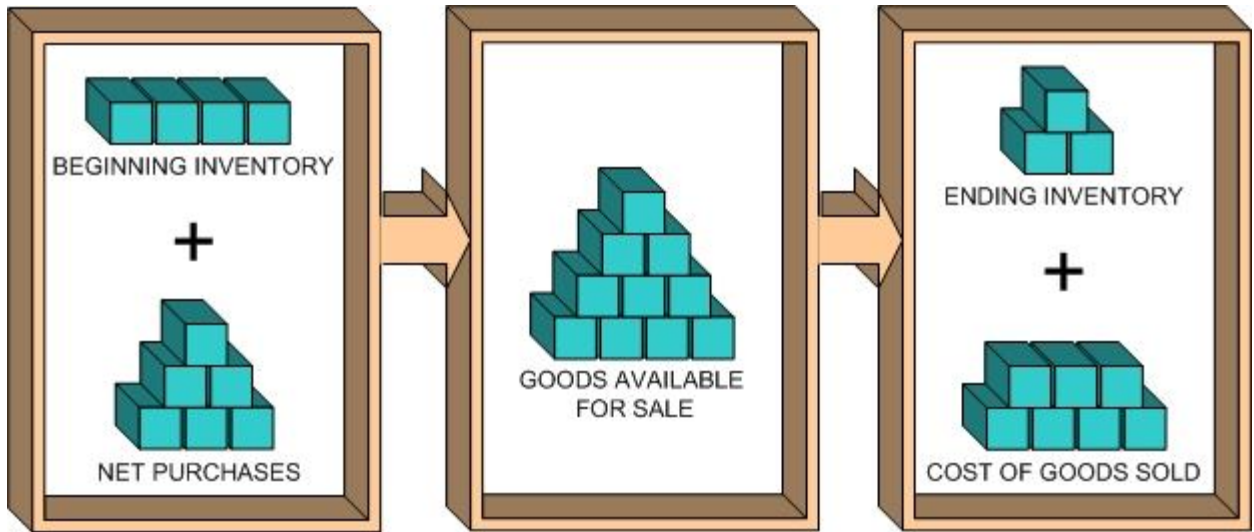
Another problem area pertains to goods on **consignment**. Consigned goods describe products that are in the custody of one party, but belong to another. Thus, the party holding physical possession is not the legal owner. The person with physical possession is known as the *consignee*. The consignee is responsible for taking care of the goods and trying to sell them to an end customer. In essence, the consignee is acting as a sales agent. The *consignor* is the party holding legal ownership/title to the consigned goods in inventory. Because consigned goods belong to the consignor, they should be included in the inventory of the consignor -- not the consignee!

Consignments arise when the owner desires to place inventory in the hands of a sales agent, but the sales agent does not want to pay for those goods unless the agent is able to sell them to an end customer. For example, auto parts manufacturers may produce many types of parts that are very specialized and expensive, such as braking systems. A retail auto parts store may not be able to afford to stock every variety. In addition, there is the real risk of ending up with numerous obsolete units. But, the manufacturer desperately needs these units in the retail channel -- when brakes fail, customers will go to the source that can provide an immediate solution. As a result, the manufacturer may consign the units to auto parts retailers.

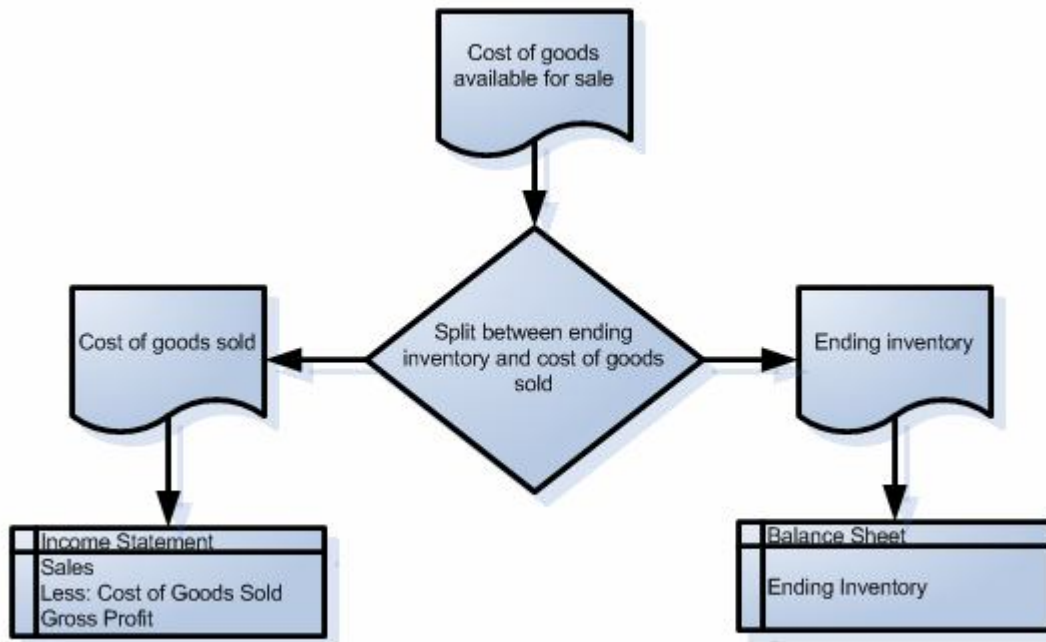
Conceptually, it is fairly simple to understand the accounting for consigned goods. Practically, they pose a recordkeeping challenge. When examining a company's inventory on hand, special care must be taken to identify both goods consigned out to others (which are to be included in inventory) and goods consigned in (which are not to be included in inventory). Obviously, if the consignee does sell the consigned goods to an end user, the consignee would keep a portion of the sales price, and remit the balance to the consignor. All of this activity requires a good accounting system to be able to identify which units are consigned, track their movement, and know when they are actually sold or returned.

INVENTORY COSTING METHODS

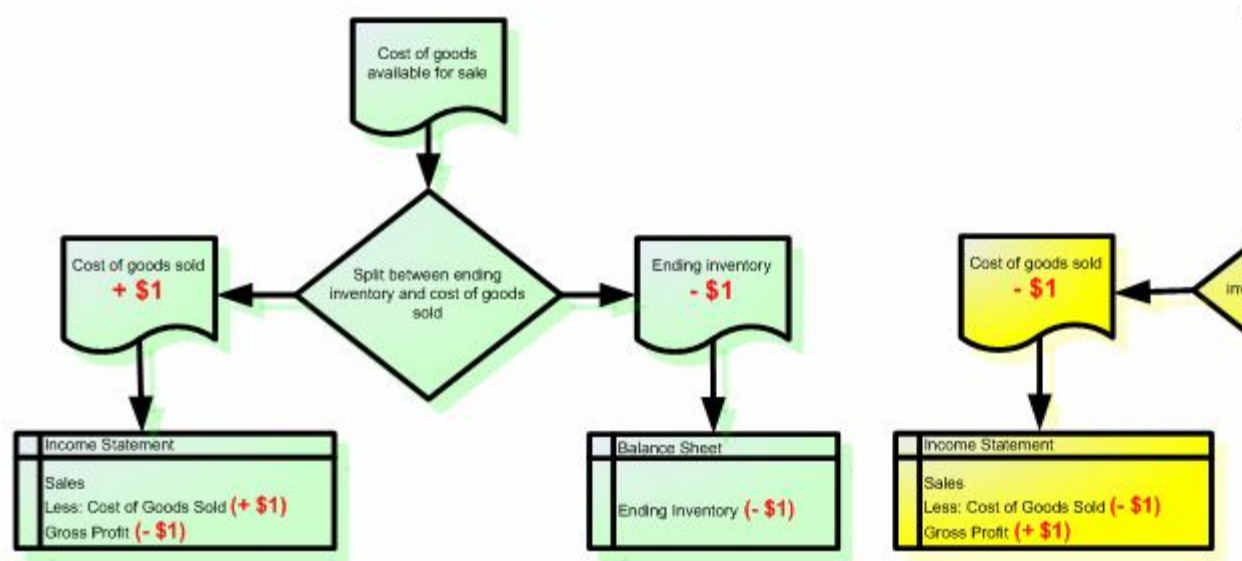
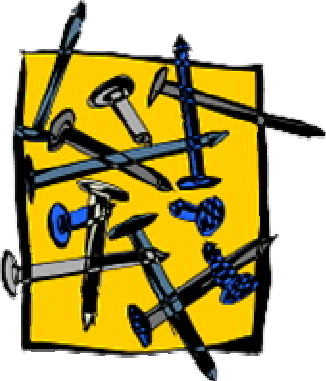
INVENTORY AND ITS IMPORTANCE TO INCOME MEASUREMENT: Even a casual observer of the stock markets will note that stock values often move significantly on information about a company's earnings. Now, you may be wondering why a discussion of inventory would begin with this observation. The reason is that inventory measurement bears directly on the determination of income! Recall from earlier chapters this formulation:



Notice that the goods available for sale are "allocated" to ending inventory and cost of goods sold. In the graphic, the units of inventory appear as physical units. But, in a company's accounting records, this flow must be translated into units of money. After all, the balance sheet expresses inventory in money, not units. And, cost of goods sold on the income statement is also expressed in money:



This means that allocating \$1 less of the total cost of goods available for sale into ending inventory will necessarily result in placing \$1 more into cost of goods sold (and vice versa). Further, as cost of goods sold is increased or decreased, there is an opposite effect on gross profit. Remember, sales minus cost of goods sold equals gross profit. As you can see, a critical factor in determining income is the allocation of the cost of goods available for sale between ending inventory and cost of goods sold:



DETERMINING THE COST OF ENDING INVENTORY: In earlier chapters, the dollar amount for inventory was simply given. Not much attention was given to the specific details about how that cost was determined. To delve deeper into this subject, let's begin by considering a general rule: Inventory should include all costs that are "ordinary and necessary" to put the goods "in place" and "in condition" for their resale.

This means that inventory cost would include the invoice price, freight-in, and similar items relating to the general rule. Conversely, "carrying costs" like interest charges (if money was borrowed to buy the inventory), storage costs, and insurance on goods held awaiting sale would not be included in inventory accounts; instead those costs would be expensed as incurred. Likewise, freight-out and sales commissions would be expensed as a selling cost rather than being included with inventory.

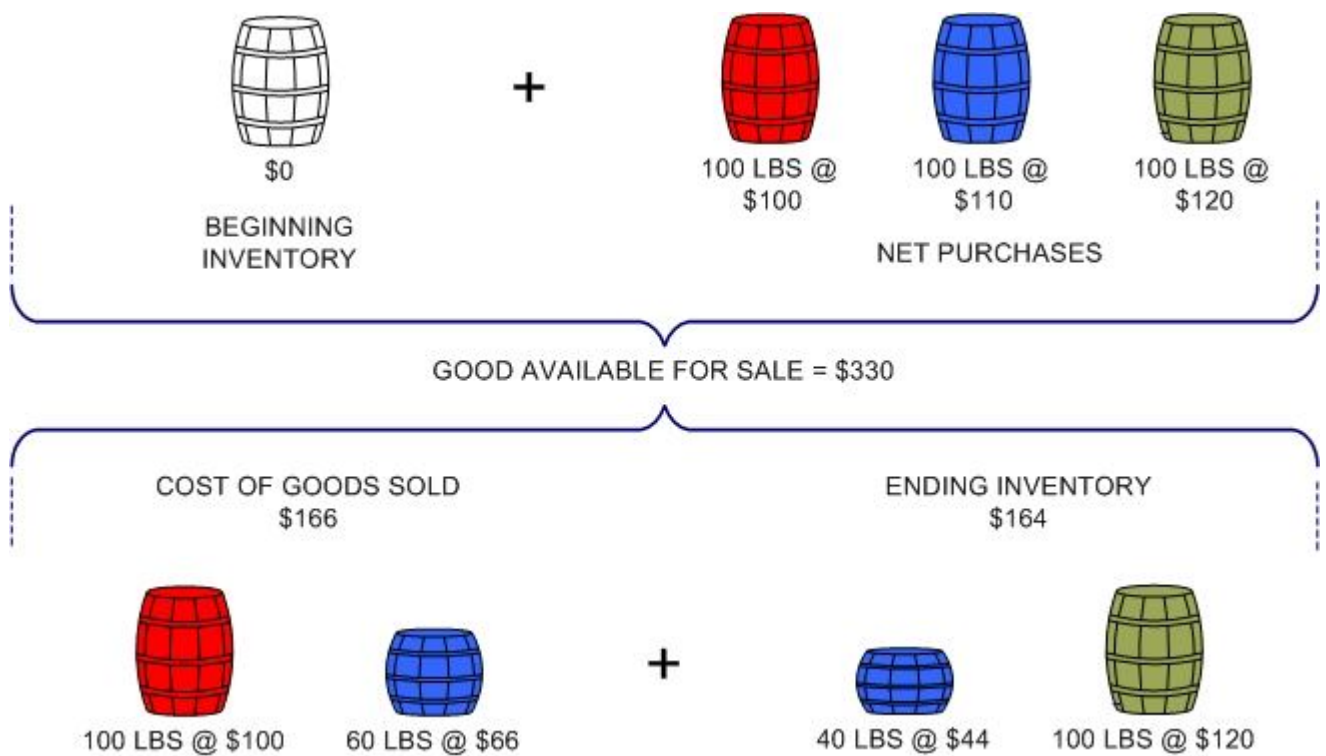
COSTING METHODS: Once the unit cost of inventory is determined via the preceding rules of logic, specific costing methods must be adopted. In other words, each unit of inventory will not have the exact same cost, and an assumption must be implemented to maintain a systematic approach to assigning costs to units on hand (and to units sold).

To solidify this point, consider a simple example: Mueller Hardware has a storage barrel full of nails. The barrel was restocked three times with 100 pounds of nails being added at each restocking. The first batch cost Mueller \$100, the second batch cost Mueller \$110, and the third batch cost Mueller \$120. Further, the barrel was never allowed to empty completely and customers have picked all around in the barrel as they bought nails from Mueller (and new nails were just dumped in on top of the remaining pile at each restocking). So, it's hard to say exactly which nails are "physically" still in the barrel. As you might expect, some of the nails are probably from the first purchase, some from the second purchase, and some from the final purchase. Of course, they all look about the same. At the end of the accounting period, Mueller weighs the barrel and decides that 140 pounds of nails are on hand (from the 300 pounds available). The accounting question you must consider is: what is the cost of the ending inventory? Remember, this is not a trivial question, as it will bear directly on the determination of income! To deal with this very common accounting question, a company must adopt an inventory costing method (and that method must be applied consistently from year to year). The methods from which to choose are varied, generally consisting of one of the following:

- First-in, first-out (FIFO)
- Last-in, first-out (LIFO)
- Weighted-average

Each of these methods entail certain **cost-flow assumptions**. Importantly, the assumptions bear no relation to the physical flow of goods; they are merely used to assign costs to inventory units. (Note: FIFO and LIFO are pronounced with a long "i" and long "o" vowel sound). Another method that will be discussed shortly is the specific identification method; as its name suggests, it does not depend on a cost flow assumption.

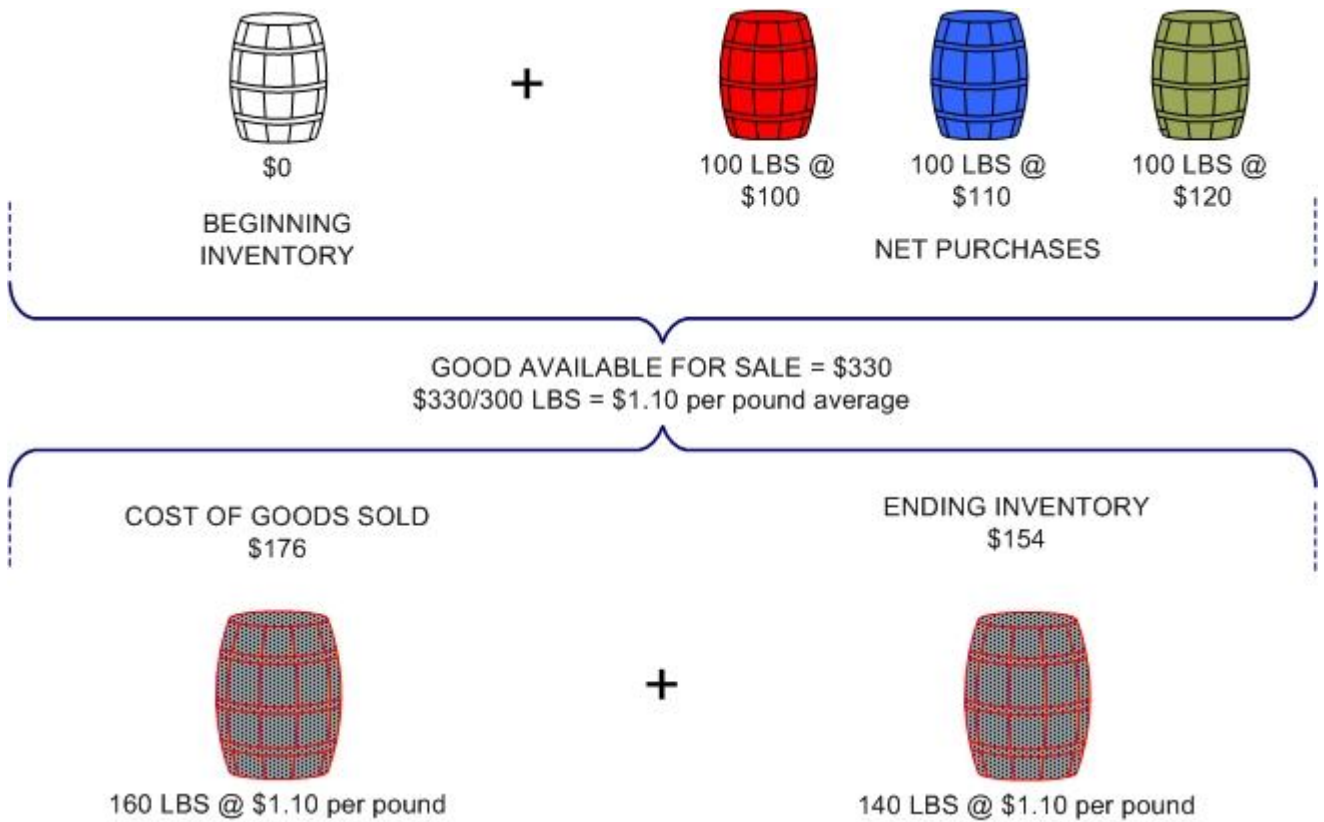
FIRST-IN, FIRST-OUT CALCULATIONS: With **first-in, first-out**, the oldest cost (i.e., the first in) is matched against revenue and assigned to cost of goods sold. Conversely, the most recent purchases are assigned to units in ending inventory. For Mueller's nails the FIFO calculations would look like this:



LAST-IN, FIRST-OUT CALCULATIONS: **Last-in, first-out** is just the reverse of FIFO; recent costs are assigned to goods sold while the oldest costs remain in inventory:



WEIGHTED-AVERAGE CALCULATIONS: The weighted-average method relies on average unit cost to calculate cost of units sold and ending inventory. Average cost is determined by dividing total cost of goods available for sale by total units available for sale. Mueller Hardware paid \$330 for 300 pounds of nails, producing an average cost of \$1.10 per pound ($\$330/300$). The ending inventory consisted of 140 pounds, or \$154. The cost of goods sold was \$176 (160 pounds X \$1.10):

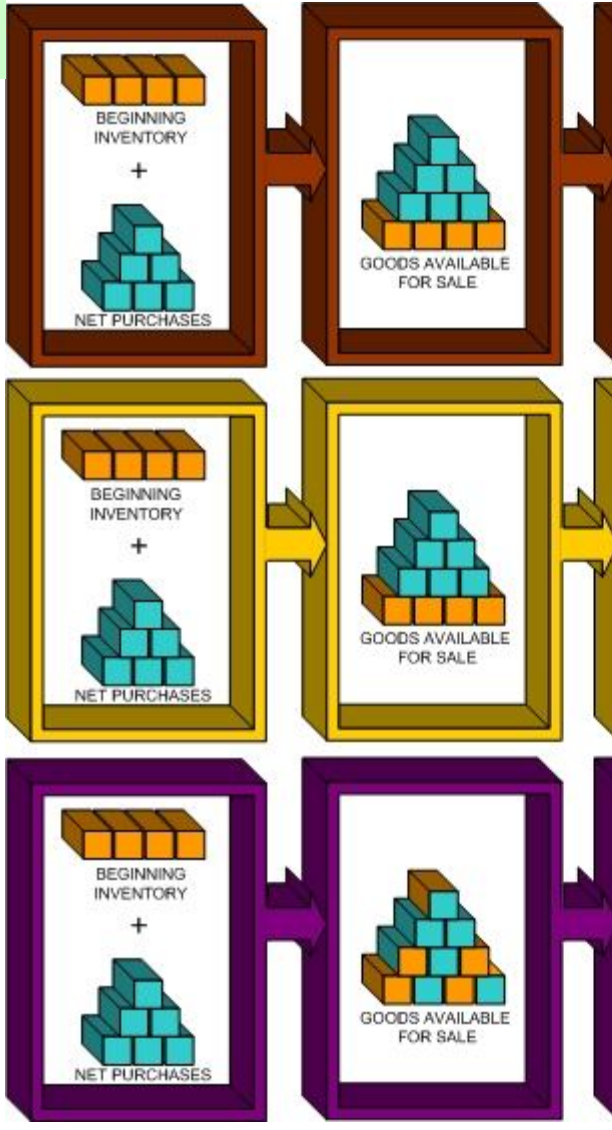


PRELIMINARY RECAP AND COMPARISON: The preceding discussion is summarized by the following comparative illustrations. Examine each, noting how the cost of beginning inventory and purchases flow to ending inventory and cost of goods sold. As you examine this drawing, you need to know that accountants usually adopt one of these cost flow assumptions to track inventory costs within the accounting system. The actual physical flow of the inventory may or may not bear a resemblance to the adopted cost flow assumption.

| Date | Purchases | Sales | Units on Hand |
|--------|-------------------------|-------------------------|---------------|
| 1-Jan | | | 4,000 |
| 5-Mar | 6,000 units @ \$16 each | | 10,000 |
| 17-Apr | | 7,000 units @ \$22 each | 3,000 |
| 7-Sep | 8,000 units @ \$17 each | | 11,000 |
| 11-Nov | | 6,000 units @ \$25 each | 5,000 |

| GONZALES CHEMICAL COMPANY Income Statement For the Year Ending December 31, 20XX | | |
|--|----------------|-------------------|
| Revenues | | |
| Net sales | | \$ 304,000 |
| Cost of goods sold | | |
| Beginning inventory, Jan. 1 | \$ 48,000 | |
| Net purchases | <u>232,000</u> | |
| Goods available for sale | \$ 280,000 | |
| Less: Ending inventory, Dec. 31 | <u>85,000</u> | |
| Cost of goods sold | | <u>195,000</u> |
| Gross profit | | \$ 109,000 |
| Expenses | | ... |

| GONZALES CHEMICAL COMPANY Balance Sheet December 31, 20XX | | |
|---|--|--------|
| Assets | | |
| ... | | ... |
| Inventory | | 85,000 |
| ... | | ... |



DETAILED ILLUSTRATION: Having been introduced to the basics of FIFO, LIFO, and weighted-average, it is now time to look at a more comprehensive illustration. In this illustration, there will also be some beginning inventory that is carried over from the preceding year. Assume that Gonzales Chemical Company had a beginning inventory balance that consisted of 4,000 units with a cost of \$12 per unit. Purchases and sales are shown at right. The schedule suggests that Gonzales should have 5,000 units on hand at the end of the year. Assume that Gonzales conducted a physical count of inventory and confirmed that 5,000 units were actually on hand.

Based on the information in the schedule, we know that Gonzales will report sales of \$304,000. This amount is the result of selling 7,000 units at \$22 (\$154,000) and 6,000 units at \$25 (\$150,000). The dollar amount of sales will be reported in the income statement, along with cost of goods sold and gross profit. How much is cost of goods sold and gross profit? The answer will depend on the cost flow assumption adopted by Gonzales.

FIFO: If Gonzales uses FIFO, ending inventory and cost of goods sold calculations are as follows, producing the financial statements at right:

GONZALES CHEMICAL COMPANY
Income Statement
For the Year Ending December 31, 20XX

| | |
|---------------------------------|----------------|
| Revenues | |
| Net sales | \$ 304,000 |
| Cost of goods sold | |
| Beginning inventory, Jan. 1 | \$ 48,000 |
| Net purchases | <u>232,000</u> |
| Goods available for sale | \$ 280,000 |
| Less: Ending inventory, Dec. 31 | <u>64,000</u> |
| Cost of goods sold | <u>216,000</u> |
| Gross profit | \$ 88,000 |
| Expenses | ... |

GONZALES CHEMICAL COMPANY
Balance Sheet
December 31, 20XX

| | |
|---------------|--------|
| Assets | |
| ... | ... |
| Inventory | 64,000 |
| ... | ... |

| | | |
|---|---|---|
| Beginning inventory 4,000 X \$12 = \$48,000 | + | Net purchases (\$232,000 total) 6,000 X \$16 = \$96,000 8,000 X \$17 = \$136,000 |
| = | | |
| Cost of goods available for sale (\$280,000 total) | | |
| 4,000 X \$12 = \$48,000 | | |
| 6,000 X \$16 = \$96,000 | | |
| 8,000 X \$17 = \$136,000 | | |
| = | | |
| Ending inventory (\$85,000) 5,000 X \$17 = \$85,000 | + | Cost of goods sold (\$195,000 total) 4,000 X \$12 = \$48,000 6,000 X \$16 = \$96,000 3,000 X \$17 = \$51,000 |

LIFO: If Gonzales uses LIFO, ending inventory and cost of goods sold calculations are as follows, producing the financial statements at right:

GONZALES CHEMICAL COMPANY
Income Statement
For the Year Ending December 31, 20XX

| | |
|---------------------------------|-------------------|
| Revenues | |
| Net sales | \$ 304,000 |
| Cost of goods sold | |
| Beginning inventory, Jan. 1 | \$ 48,000 |
| Net purchases | <u>232,000</u> |
| Goods available for sale | \$ 280,000 |
| Less: Ending inventory, Dec. 31 | <u>77,778</u> |
| Cost of goods sold | <u>202,222</u> |
| Gross profit | \$ 101,778 |
| Expenses | ... |

GONZALES CHEMICAL COMPANY
Balance Sheet
December 31, 20XX

| | |
|---------------|--------|
| Assets | |
| ... | ... |
| Inventory | 77,778 |
| ... | ... |

| | | |
|---|---|---|
| Beginning Inventory 4,000 X \$12 = \$48,000 | + | Net purchases (\$232,000 total) 6,000 X \$16 = \$96,000 8,000 X \$17 = \$136,000 |
| = | | |
| Cost of goods available for sale (\$280,000 total) 4,000 X \$12 = \$48,000 6,000 X \$16 = \$96,000 8,000 X \$17 = \$136,000 | | |
| = | | |
| Ending inventory (\$64,000) 4,000 X \$12 = \$48,000 1,000 X \$16 = \$16,000 | + | Cost of goods sold (\$216,000 total) 8,000 X \$17 = \$136,000 5,000 X \$16 = \$80,000 |

WEIGHTED AVERAGE: If the company uses the **weighted-average** method, ending inventory and cost of goods sold calculations are as follows, producing the financial statements at right:

| | |
|---|--------------------|
| Cost of goods available for sale | \$280,000 |
| Divided by units (4,000 + 6,000 + 8,000) | 18,000 |
| Average unit cost (note: do not round) | \$15.5555 per unit |
| Ending inventory (5,000 units @ \$15.5555) | \$77,778 |
| Cost of goods sold (13,000 units @ \$15.5555) | \$202,222 |

COMPARING INVENTORY METHODS: The following table reveals that the amount of gross profit and ending inventory numbers appear quite different, depending on the inventory method selected:

| | FIFO | LIFO | Weighted-Average |
|---------------------------|----------------|----------------|------------------|
| Sales | \$ 304,000 | \$ 304,000 | \$ 304,000 |
| Cost of goods sold | <u>195,000</u> | <u>216,000</u> | <u>202,222</u> |
| Gross profit | \$ 109,000 | \$ 88,000 | \$ 101,778 |
| Ending inventory | \$ 85,000 | \$ 64,000 | \$ 77,778 |

The results above are consistent with the general rule that LIFO results in the lowest income (assuming rising prices, as was evident in the Gonzales example), FIFO the highest, and weighted average an amount in between. Because LIFO tends to depress profits, you may wonder why a company would select this option; the answer is sometimes driven by income tax considerations. Lower income produces a lower tax bill, thus companies will tend to prefer the LIFO choice. Usually, financial accounting methods do not have to conform to methods chosen for tax purposes. However, in the USA, LIFO "conformity rules" generally require that LIFO be used for financial reporting if it is used for tax purposes.

Accounting theorists may argue that financial statement presentations are enhanced by LIFO because it matches recently incurred costs with the recently generated revenues. Others maintain that FIFO is better because recent costs are reported in inventory on the balance sheet. Whichever side of this debate you find yourself, it is important to note that the inventory method in use must be clearly communicated in the financial statements and related notes. Companies that use LIFO will frequently augment their reports with supplement data about what inventory would be if FIFO were instead used. No matter which method is selected, consistency in method of application should be maintained. This does not mean that changes cannot occur; however, changes should only be made if financial accounting is improved.

SPECIFIC IDENTIFICATION: As was noted earlier, another inventory method is **specific identification**. This method requires a business to identify each unit of merchandise with the unit's cost and retain that identification until the inventory is sold. Once a specific inventory item is sold, the cost of the unit is assigned to cost of goods sold. Specific identification requires tedious record keeping and is typically only used for inventories of uniquely identifiable goods that have a fairly high per-unit cost (e.g., automobiles, fine jewelry, and so forth).

PERPETUAL INVENTORY SYSTEMS

PERPETUAL INVENTORY SYSTEMS: All of the preceding illustrations were based on the periodic inventory system. In other words, the ending inventory was counted and costs were assigned only at the end of the period. A more robust system is the perpetual system. With a perpetual system, a running count of goods on hand is maintained at all times. Modern information systems facilitate detailed perpetual cost tracking for those goods.

PERPETUAL FIFO: The following table reveals the application of the perpetual inventory system for Gonzales -- using a FIFO approach:

| Date | Purchases | Sales | Cost of Goods Sold |
|--------|--------------------------|--------------------------|---|
| 1-Jan | | | |
| 5-Mar | 6,000 X \$16 = \$96,000 | | |
| 17-Apr | | 7,000 @ \$22 = \$154,000 | 4,000 X \$12 = \$ 48,000 3,000 X \$16 = \$ 48,000 \$ 96,000 |
| 7-Sep | 8,000 X \$17 = \$136,000 | | |
| 11-Nov | | 6,000 @ \$25 = \$150,000 | 3,000 X \$16 = \$ 48,000 3,000 X \$17 = \$ 51,000 \$ 99,000 |
| 31-Dec | | | |

Two points come to mind when examining this table. First, there is considerable detail in tracking inventory using a perpetual approach; thank goodness for computers. Second, careful study is needed to discern exactly what is occurring on each date. For example, look at April 17 and note that 3,000 units remain after selling 7,000 units. This is determined by looking at the preceding balance data on March 5 (consisting of 10,000 total units (4,000 + 6,000)), and removing 7,000 units as follows: all of the 4,000 unit layer, and 3,000 of the 6,000 unit layer. Remember, this is the FIFO application, so the layers are peeled away based on the chronological order of their creation. In essence, each purchase and sale transaction impacts the residual composition of the layers associated with the item of inventory. Realize that this type of data must be captured and maintained for each item of inventory if the perpetual system is to be utilized; a task that was virtually impossible before cost effective computer solutions became commonplace. Today, the method is quite common, as it provides better "real-time" data needed to run a successful business.

JOURNAL ENTRIES: The table above provides information needed to record purchase and sale information. Specifically, Inventory is debited as purchases occur and credited as sales occur. Following are the entries:

| | | | |
|--------|-------------------------|--------|--------|
| 3-5-XX | <u>Inventory</u> | 96,000 | |
| | <u>Accounts Payable</u> | | 96,000 |

| | | | |
|----------|---|---------|---------|
| | <i>Purchased \$96,000 of inventory on account (6,000 X \$16)</i> | | |
| 4-17-XX | <u>Accounts Receivable</u> | 154,000 | |
| | <u>Sales</u> | | 154,000 |
| | <i>Sold merchandise on account (7,000 X \$22)</i> | | |
| 4-17-XX | <u>Cost of Goods Sold</u> | 96,000 | |
| | <u>Inventory</u> | | 96,000 |
| | <i>To record the cost of merchandise sold ((4,000 X \$12) + (3,000 X \$16))</i> | | |
| 9-7-XX | <u>Inventory</u> | 136,000 | |
| | <u>Accounts Payable</u> | | 136,000 |
| | <i>Purchased \$136,000 of inventory on account (8,000 X \$17)</i> | | |
| 11-11-XX | <u>Accounts Receivable</u> | 150,000 | |
| | <u>Sales</u> | | 150,000 |
| | <i>Sold merchandise on account (6,000 X \$25)</i> | | |
| 11-11-XX | <u>Cost of Goods Sold</u> | 99,000 | |
| | <u>Inventory</u> | | 99,000 |
| | <i>To record the cost of merchandise sold ((3,000 X \$16) + (3,000 X \$17))</i> | | |

Let's see how these entries impact certain ledger accounts and the resulting financial statements:

| ACCOUNT: Inventory | | | | | |
|--------------------|----------------------|-----------|-----------|-----------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ 48,000 | |
| Mar. 5, 20XX | Purchase transaction | \$ 96,000 | | 144,000 | |
| Apr. 17, 20XX | Sale transaction | - | \$ 96,000 | 48,000 | |
| Sept. 7, 20XX | Purchase transaction | 136,000 | - | 184,000 | |
| Nov. 11, 20XX | Sale transaction | - | 99,000 | 85,000 | |

| ACCOUNT: Sales | | | | | |
|----------------|------------------|-------|------------|---------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ - | |
| Apr. 17, 20XX | Sale transaction | \$ - | \$ 154,000 | 154,000 | |
| Nov. 11, 20XX | Sale transaction | - | 150,000 | 304,000 | |

| ACCOUNT: Cost of goods sold | | | | | |
|-----------------------------|------------------|-----------|--------|---------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ - | |
| Apr. 17, 20XX | Sale transaction | \$ 96,000 | \$ - | 96,000 | |
| Nov. 11, 20XX | Sale transaction | 99,000 | - | 195,000 | |

GONZALES CHEMICAL
Income Statement
For the Year Ending Dec

Net sales
Cost of goods sold
Gross profit
Expenses

GONZALES CHEMICAL
Balance Sheet
December 31,

Assets
...
Inventory
...

If you are very perceptive, you will note that this is the same thing that resulted under the periodic FIFO approach introduced earlier. So, another general observation is in order: The FIFO method will produce the same financial statement results no matter whether it is applied on a periodic or perpetual basis. This occurs because the beginning inventory and early purchases are peeled away and charged to cost of goods sold -- whether the associated calculations are done "as you go" (perpetual) or "at the end of the period" (periodic).

PERPETUAL LIFO: LIFO can also be applied on a perpetual basis. This time, the results will not be the same as the periodic LIFO approach (because the "last-in" layers are constantly being peeled away, rather than waiting until the end of the period). The following table reveals the application of a perpetual LIFO approach. Study it carefully, this time noting that sales transactions result in a peeling away of the most recent purchase layers. The journal entries are not repeated here for the LIFO approach. Do note, however, that the *accounts* would be the same (as with FIFO); only the amounts would change.

| Date | Purchases | Sales | Cost of Goods Sold | |
|--------|--------------------------|--------------------------|---|----------------|
| 1-Jan | | | | 4, |
| 5-Mar | 6,000 X \$16 = \$96,000 | | | 4, 6, |
| 17-Apr | | 7,000 @ \$22 = \$154,000 | 6,000 X \$16 = \$ 96,000 1,000 X \$12 = \$ 12,000 \$108,000 | 3, 3, 8, |
| 7-Sep | 8,000 X \$17 = \$136,000 | | | 8, |
| 11-Nov | | 6,000 @ \$25 = \$150,000 | 6,000 X \$17 = \$102,000 | 3, 2, |
| 31-Dec | | | | 3, 2, |

| ACCOUNT: Inventory | | | | | |
|--------------------|----------------------|-----------|------------|-----------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ 48,000 | |
| Mar. 5, 20XX | Purchase transaction | \$ 96,000 | | 144,000 | |
| Apr. 17, 20XX | Sale transaction | | \$ 108,000 | 36,000 | |
| Sept. 7, 20XX | Purchase transaction | 136,000 | | 172,000 | |
| Nov. 11, 20XX | Sale transaction | | 102,000 | 70,000 | |

| ACCOUNT: Sales | | | | | |
|----------------|------------------|-------|------------|---------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ - | |
| Apr. 17, 20XX | Sale transaction | | \$ 154,000 | 154,000 | |
| Nov. 11, 20XX | Sale transaction | | 150,000 | 304,000 | |

| ACCOUNT: Cost of goods sold | | | | | |
|-----------------------------|------------------|------------|--------|---------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ - | |
| Apr. 17, 20XX | Sale transaction | \$ 108,000 | | 108,000 | |
| Nov. 11, 20XX | Sale transaction | 102,000 | | 210,000 | |

| GONZALES CHEMICAL Income Statement For the Year Ending Dec 31, 20XX | |
|---|--|
| Net sales | |
| Cost of goods sold | |
| Gross profit | |
| Expenses | |

| GONZALES CHEMICAL Balance Sheet December 31, 20XX | |
|---|--|
| Assets | |
| ... | |
| Inventory | |
| ... | |

MOVING AVERAGE: The average method can also be applied on a perpetual basis, earning it the name "moving average" approach. This technique is considerably more involved, as a new average unit cost must be computed with each purchase transaction. For the last time, we will look at the Gonzales Chemical Company data:

| Date | Purchases | Sales | Cost of Goods Sold | Inventory |
|--------|--------------------------|--------------------------|------------------------------|------------------------------|
| 1-Jan | | | | 4,000 @ \$12 = \$48,000 |
| 5-Mar | 6,000 X \$16 = \$96,000 | | | 10,000 @ \$14.40 = \$144,000 |
| 17-Apr | | 7,000 @ \$22 = \$154,000 | 7,000 X \$14.40 = \$100,800 | 3,000 @ \$14.40 = \$43,200 |
| 7-Sep | 8,000 X \$17 = \$136,000 | | | 11,000 @ \$16.40 = \$180,400 |
| 11-Nov | | 6,000 @ \$25 = \$150,000 | 6,000 X \$16.2909 = \$97,745 | 5,000 @ \$16.2909 = \$81,455 |
| 31-Dec | | | | 5,000 @ \$16.2909 = \$81,455 |

The resulting financial data using the moving-average approach are:



| ACCOUNT: Inventory | | | | | |
|--------------------|----------------------|-----------|------------|-----------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ 48,000 | |
| Mar. 5, 20XX | Purchase transaction | \$ 96,000 | | 144,000 | |
| Apr. 17, 20XX | Sale transaction | | \$ 100,800 | 43,200 | |
| Sept. 7, 20XX | Purchase transaction | 136,000 | | 179,200 | |
| Nov. 11, 20XX | Sale transaction | | 97,745 | 81,455 | |

| ACCOUNT: Sales | | | | | |
|----------------|------------------|-------|------------|---------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ - | |
| Apr. 17, 20XX | Sale transaction | | \$ 154,000 | 154,000 | |
| Nov. 11, 20XX | Sale transaction | | 150,000 | 304,000 | |

| ACCOUNT: Cost of goods sold | | | | | |
|-----------------------------|------------------|------------|--------|---------|--|
| Date | Description | Debit | Credit | Balance | |
| Jan. 1, 20XX | Balance forward | | | \$ - | |
| Apr. 17, 20XX | Sale transaction | \$ 100,800 | | 100,800 | |
| Nov. 11, 20XX | Sale transaction | 97,745 | | 198,545 | |

| GONZALES CHEMICAL Income Statement For the Year Ending Dec | |
|--|--|
| Net sales | |
| Cost of goods sold | |
| Gross profit | |
| Expenses | |

| GONZALES CHEMICAL Balance Sheet December 31, 20XX | |
|---|--|
| Assets | |
| ... | |
| Inventory | |
| ... | |

As with the periodic system, observe that the perpetual system produced the lowest gross profit via LIFO, the highest with FIFO, and the moving-average fell in between.

LOWER OF COST OR MARKET ADJUSTMENTS

Although every attempt is made to prepare and present financial data that are free from bias, accountants do employ a degree of conservatism. **Conservatism** dictates that accountants avoid overstatement of assets and income. Conversely, liabilities would tend to be presented at higher amounts in the face of uncertainty. This is not a hardened rule, just a general principle of measurement.

In the case of inventory, a company may find itself holding inventory that has an uncertain future; meaning the company does not know if or when it will sell. Obsolescence, over supply, defects, major price declines, and similar problems can contribute to uncertainty about the "realization" (conversion to cash) for inventory items. Therefore, accountants evaluate inventory and employ "**lower of cost or market**" considerations. This simply means that if inventory is carried on the accounting records at greater than its market value, a write-down from the recorded cost to the lower market value would be made. In essence, the Inventory account would be credited, and a Loss for Decline in Market Value would be the offsetting debit. This debit would be reported in the income statement as a charge against (reduction in) income.

MEASURING MARKET VALUE: Market values are very subjective. In the case of inventory, applicable accounting rules define "market" as the replacement cost (not sales price!) of the

goods. In other words, what would it cost for the company to acquire or reproduce the inventory?

However, the lower-of-cost-or-market rule can become slightly more complex because the accounting rules further specify that market not exceed a ceiling amount known as "net realizable value" (NRV = selling price minus completion and disposal costs). The reason is this: occasionally "replacement cost" for an inventory item could be very high (e.g., a supply of slide rules at an office supply store) even though there is virtually no market for the item and it is unlikely to produce much net value when it is sold. Therefore, "market" for purposes of the lower of cost or market test should not exceed the net realizable value. Additionally, the rules stipulate that "market" should not be less than a floor amount, which is the net realizable value less a normal profit margin.

What we have then, is the following decision process:

Step 1: Determine Market -- replacement cost, not to exceed the ceiling nor be less than the floor.

Step 2: Report inventory at the lower of its cost or market (as determined in step 1).

To illustrate, consider the following four different inventory items, and note that the "cost" is shaded in light yellow and the appropriate "market value" is shaded in tan (step 1). The reported value is in the final row, and corresponds to the lower of cost or market:

| | Item A | Item B | Item C |
|--|---------|---------|---------|
| Cost | \$1,000 | \$2,500 | \$3,000 |
| Vs. "Market": | | | |
| Replacement cost | \$1,200 | \$2,400 | \$3,000 |
| Net realizable value (ceiling) | \$1,400 | \$2,800 | \$2,800 |
| NRV less normal profit margin (floor) | \$1,100 | \$2,200 | \$2,200 |
| VALUE TO REPORT | \$1,000 | \$2,400 | \$2,800 |

APPLICATION OF THE LOWER-OF-COST-OR-MARKET RULE: Despite the apparent focus on detail, it is noteworthy that the lower of cost or market adjustments can be made for each item in inventory, or for the aggregate of all the inventory. In the latter case, the good offsets the bad, and a write-down is only needed if the overall market is less than the overall cost. In any event, once a write-down is deemed necessary, the loss should be recognized in income and inventory should be reduced. Once reduced, the Inventory account becomes the new basis for valuation and reporting purposes going forward. Write-ups of previous write-downs (e.g., if slide rules were to once again become hot selling items and experience a recovery in value) would not be permitted under GAAP.

INVENTORY ESTIMATION TECHNIQUES

Whether a company uses a periodic or perpetual inventory system, a physical count of goods on hand should occur from time to time. The quantities determined via the physical count are presumed to be correct, and any differences between the physical count and amounts reflected in



the accounting records should be matched with an adjustment to the accounting records. Sometimes, however, a physical count may not be possible or is not cost effective. Then, estimation methods are employed.

GROSS PROFIT METHOD: One such estimation technique is the **gross profit method**. This method might be used to estimate inventory on hand for purposes of preparing monthly or quarterly financial statements, and certainly would come into play if a fire or other catastrophe destroyed the inventory. Such estimates are often used by insurance companies to establish the amount that has been lost by an insured party. Very simply, a company's historical normal gross profit rate (i.e., gross profit as a percentage of sales) would be used to estimate the amount of gross profit and cost of sales. Once these data are known, it is relatively simple to project the lost inventory.

For example, assume that Tiki's inventory was destroyed by fire. Sales for the year, prior to the date of the fire were \$1,000,000, and Tiki usually sells goods at a 40% gross profit rate. Therefore, Tiki can readily estimate that cost of goods sold was \$600,000. Tiki's beginning of year inventory was \$500,000, and \$800,000 in purchases had occurred prior to the date of the fire. The inventory destroyed by fire can be estimated via the gross profit method, as shown.

| | A | B | C | D | E | F | G |
|----|--|------|---|--------------|---|---|---|
| 1 | | | | | | | |
| 2 | Sales | 100% | | \$ 1,000,000 | | | |
| 3 | Cost of Goods Sold | 60% | | 600,000 | | | |
| 4 | Gross Profit | 40% | | \$ 400,000 | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | Beginning inventory | | | \$ 500,000 | | | |
| 9 | Purchases | | | 800,000 | | | |
| 10 | Goods available | | | \$ 1,300,000 | | | |
| 11 | Less: Cost of goods sold | | | 600,000 | | | |
| 12 | Ending inventory presumed lost to fire | | | \$ 700,000 | | | |
| 13 | | | | | | | |

Diagram annotations:

- STEP 1: Determine relative percentages** (points to rows 2-4)
- STEP 2: Solve for cost of goods sold** (points to row 3)
- STEP 3: Fill in known values** (points to rows 8-11)

RETAIL METHOD: A method that is widely used by merchandising firms to value or estimate ending inventory is the **retail method**. This method would only work where a category of inventory sold at retail has a consistent mark-up. The cost-to-retail percentage is multiplied times ending inventory at retail. Ending inventory at retail can be determined by a physical count of goods on hand, at their retail value. Or, sales might be subtracted from goods available for sale at retail. This option is shown in the following example.

To illustrate, Crock Buster, a specialty cookware store, sells pots that cost \$7.50 for \$10 -- yielding a cost to retail percentage of 75%. The beginning inventory totaled \$200,000 (at cost), purchases were \$300,000 (at cost), and sales totaled \$460,000 (at retail). The calculations suggest an ending inventory that has a cost of \$155,000. In reviewing these calculations, note that the only "givens" are circled in yellow. These three data points are manipulated by the cost



to retail percentage to solve for several unknowns. Be careful to note the percentage factor is *divided* within the red arrows and *multiplied* within the blue.

| | A | B | C | D |
|---|---------------------|----------------------------|---------------|------------|
| 1 | | At Cost (75% of retail) | | At Retail |
| 2 | Beginning Inventory | \$ 200,000 | $\div 0.75$ | \$ 266,667 |
| 3 | Purchases | 300,000 | $\div 0.75$ | 400,000 |
| 4 | Goods available | \$ 500,000 | | \$ 666,667 |
| 5 | Sales | 345,000 | $0.75 \times$ | 460,000 |
| 6 | Ending inventory | \$ 155,000 | | \$ 206,667 |
| 7 | | | | |
| 8 | | | | |

INVENTORY MANAGEMENT

The best run companies will minimize their investment in inventory. Inventory is costly and involves the potential for loss and spoilage. In the alternative, being out of stock may result in lost customers, so a delicate balance must be maintained. Careful attention must be paid to the inventory levels. One ratio that is often used to monitor inventory is the Inventory Turnover Ratio. This ratio shows the number of times that a firm's inventory balance was turned ("sold") during a year. It is calculated by dividing cost of sales by the average inventory level:

$$\text{Inventory Turnover Ratio} = \text{Cost of Goods Sold} / \text{Average Inventory}$$

If a company's average inventory was \$1,000,000, and the annual cost of goods sold was \$8,000,000, you would deduce that inventory turned over 8 times (approximately once every 45 days). This could be good or bad depending on the particular business; if the company was a baker it would be very bad news, but a lumber yard might view this as good. So, general assessments are not in order. What is important is to monitor the turnover against other companies in the same line of business, and against prior years' results for the same company. A declining turnover rate might indicate poor management, slow moving goods, or a worsening economy. In making such comparisons and evaluations, you should now be clever enough to recognize that the choice of inventory method affects the reported amounts for cost of goods sold and average inventory. As a result, the impacts of the inventory method in use must be considered in any analysis of inventory turnover ratios.

INVENTORY ERRORS

In the process of maintaining inventory records and the **physical count** of goods on hand, errors may occur. It is quite easy to overlook goods on hand, count goods twice, or simply make mathematical mistakes. Therefore, it is vital that accountants and business owners fully understand the effects of inventory errors and grasp the need to be careful to get these numbers as correct as possible.

A general rule is that overstatements of ending inventory cause overstatements of income, while understatements of ending inventory cause understatements of income. For instance, compare the following correct and incorrect scenario -- where the only difference is an overstatement of ending inventory by \$1,000 (note that purchases were correctly recorded -- if they had not, the general rule of thumb would not hold):

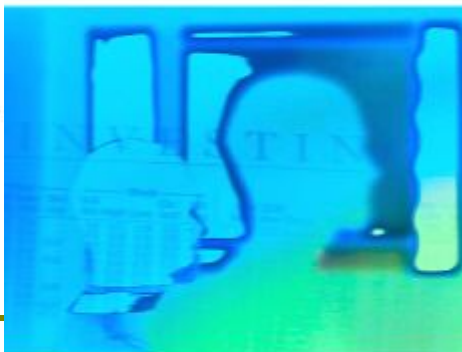
| | <u>CORRECT</u> | | <u>INCORRECT</u> |
|-------------------------|------------------|--------------|------------------|
| Beginning inventory | \$ 5,000 | | \$ 5,000 |
| Purchases | <u>11,000</u> | | <u>11,000</u> |
| Cost of goods available | \$ 16,000 | | \$ 16,000 |
| Ending inventory | <u>4,000</u> | → Overstated | <u>5,000</u> |
| Cost of goods sold | <u>\$ 12,000</u> | | <u>\$ 11,000</u> |
| | | | |
| Sales | \$ 25,000 | | \$ 25,000 |
| Cost of goods sold | <u>12,000</u> | | <u>11,000</u> |
| Gross profit | <u>\$ 13,000</u> | → Overstates | <u>\$ 14,000</u> |

Had the above inventory error been an understatement (\$3,000 instead of the correct \$4,000), then the ripple effect would have caused an understatement of income by \$1,000.

Inventory errors tend to be counterbalancing. That is, one year's ending inventory error becomes the next year's beginning inventory error. The general rule of thumb is that overstatements of beginning inventory cause that year's income to be understated, while understatements of beginning inventory cause overstatements of income. Examine the following table where the only error relates to beginning inventory balances:

| | <u>CORRECT</u> | | <u>INCORRECT</u> |
|-------------------------|------------------|---------------|------------------|
| Beginning inventory | \$ 4,000 | → Overstated | \$ 5,000 |
| Purchases | <u>11,000</u> | | <u>11,000</u> |
| Cost of goods available | \$ 15,000 | | \$ 16,000 |
| Ending inventory | <u>3,000</u> | | <u>3,000</u> |
| Cost of goods sold | <u>\$ 12,000</u> | | <u>\$ 13,000</u> |
| | | | |
| Sales | \$ 25,000 | | \$ 25,000 |
| Cost of goods sold | <u>12,000</u> | | <u>13,000</u> |
| Gross profit | <u>\$ 13,000</u> | → Understates | <u>\$ 12,000</u> |

Hence, if the above data related to two consecutive years, the total income would be correct (\$13,000 + \$13,000 = \$14,000 + \$12,000). However, the amount for each year is critically flawed.



principles of accounting

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chapter 9

Long-term Investments

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "long-term investments" chapter are to learn about:

- [How intent influences the accounting for investments.](#)
- [The correct accounting for "available for sale" securities.](#)
- [Accounting for securities that are to be "held to maturity."](#)
- [Special accounting for certain long-term equity investments that require use of the equity method.](#)
- [Special accounting for certain long-term equity investments that require consolidation.](#)

DISCUSSION

INTENT-BASED ACCOUNTING

INTENT-BASED ACCOUNTING: In an earlier chapter you learned about accounting for "trading securities." Recall that trading securities are investments that were made with the intent of reselling them in the very near future, hopefully at a profit. Such investments are considered highly liquid and are classified on the balance sheet as current assets. They are carried at fair market value, and the changes in value are measured and included in the operating income of each period.

However, not all investments are made with the goal of turning a quick profit. Many investments are acquired with the intent of holding them for an extended period of time. The appropriate accounting methodology depends on obtaining a deeper understanding of the nature/intent of the particular investment. You have already seen the accounting for "trading securities" where the intent was near future resale for profit. But, many investments are acquired with longer-term goals in mind.

For example, one company may acquire a majority (more than 50%) of the stock of another. In this case, the acquirer (known as the parent) must consolidate the accounts of the subsidiary. At the end of this chapter we will briefly illustrate the accounting for such "control" scenarios.

Sometimes, one company may acquire a substantial amount of the stock of another without obtaining control. This situation generally arises when the ownership level rises above 20%, but stays below the 50% level that will trigger consolidation. In these cases, the investor is deemed to have the ability to significantly influence the investee company. Accounting rules specify the "equity method" of accounting for such investments. This, too, will be illustrated within this chapter.

Not all investments are in stock. Sometimes a company may invest in a "bond" (you have no doubt heard the term "stocks and bonds"). A bond payable is a mere "promise" (i.e., bond) to "pay" (i.e., payable). Thus, the issuer of a bond payable receives money today from an investor in exchange for the issuer's promise to repay the money in the future (as you would expect, repayments will include not only amounts borrowed, but will also have added interest). In a later chapter, we will have a detailed look at Bonds Payable from the issuer's perspective. In this chapter, we will undertake a preliminary examination of bonds from the investor's perspective. Although investors may acquire bonds for "trading purposes," they are more apt to be obtained for the long-pull. In the latter case, the bond investment would be said to be acquired with the intent of holding it to maturity (its final payment date) -- thus, earning the name "held-to-maturity" investments. Held-to-maturity investments are afforded a special treatment, which is generally known as the amortized cost approach.

By default, the final category for an investment is known as the "available for sale" category. When an investment is not trading, not held-to-maturity, not involving consolidation, and not involving the equity method, by default, it is considered to be an "available for sale" investment. Even though this is a default category, do not assume it to be unimportant. Massive amounts of investments are so classified within typical corporate accounting records. We will begin our look at long-term investments by examining this important category of investments.

The following table recaps the methods you should be familiar with by the conclusion of this chapter:

| TYPE OF INVESTMENT | BASIC ACCOUNTING APPROACH * | GUIDELINES FOR ASSES |
|--|--|--|
| Trading | Fair Value Unrealized gains and losses to operating income | Intent to buy/sale for short-te |
| Available for Sale | Fair Value Unrealized gains and losses to equity via other comprehensive income | Default category |
| Held to Maturity | Amortized Cost | Intent to buy and hold until fixed fut |
| Significant Influence | Equity Method | Stock investments generally rangi |
| Control | Consolidation | Stock investments generally ex |
| * These approaches apply to investments that continue to be held. When any type of investment is sold, the "realized loss is included in operating income. | | |

THE FAIR VALUE MEASUREMENT OPTION: The Financial Accounting Standards Board recently issued a new standard, "*The Fair Value Option for Financial Assets and Financial Liabilities.*" Companies may now elect to measure certain financial assets at fair value. This new ruling essentially allows many "available for sale" and "held to maturity" investments to instead be measured at fair value (with unrealized gains and losses reported in earnings), similar to the approach previously limited to trading securities. It is difficult to predict how many companies will select this new accounting option, but it is indicative of a continuing evolution toward valued-based accounting in lieu of traditional historical cost-based approaches.



AVAILABLE FOR SALE SECURITIES

SIMILAR TO TRADING SECURITIES: The accounting for "available for sale" securities will look quite similar to the accounting for trading securities. In both cases, the investment asset account will be reflected at fair value. If you do not recall the [accounting for trading securities](#), it may be helpful to review that material via the indicated link.

To be sure, there is one big difference between the accounting for trading securities and available-for-sale securities. This difference pertains to the recognition of the changes in value. For trading securities, the changes in value were recorded in operating income. However, such is not the case for available-for-sale securities. Here, the changes in value go into a special account. We will call this account Unrealized Gain/Loss- OCI, where "OCI" will represent "Other Comprehensive Income."

OTHER COMPREHENSIVE INCOME: This notion of **other comprehensive income** is somewhat unique and requires special discussion at this time. There is a long history of accounting evolution that explains how the accounting rule makers eventually came to develop the concept of OCI. To make a long story short, most transactions and events make their way through the income statement. As a result, it can be said that the income statement is "all-inclusive." Once upon a time, this was not the case; only operational items were included in the income statement. Nonrecurring or nonoperating related transactions and events were charged or credited directly to equity, bypassing the income statement entirely (a "current operating" concept of income).

Importantly, you must take note that the accounting profession now embraces the **all-inclusive approach** to measuring income. In fact, a deeper study of accounting will reveal that the income statement structure can grow in complexity to capture various types of unique transactions and events (e.g., extraordinary gains and losses, etc.) -- but, the income statement does capture those transactions and events, however odd they may appear.

There are a few areas where accounting rules have evolved to provide for special circumstances/"exceptions." And, OCI is intended to capture those exceptions. One exception is the Unrealized Gain/Loss - OCI on available-for-sale securities. As you will soon see, the changes in value on such securities are recognized, not in operating income as with trading securities, but instead in this unique account. The OCI gain/loss is generally charged or credited directly to an equity account (Accumulated OCI), thereby bypassing the income statement (there are a variety of reporting options for OCI, and the most popular is described here).

AN ILLUSTRATION: Let us amend the Chapter 6 trading securities illustration -- such that the investments were more appropriately classified as available for sale securities:

Assume that Webster Company acquired an investment in Merriam Corporation. The intent was not for trading purposes, control, or to exert significant influence. The following entry was needed on March 3, 20X6, the day Webster bought stock of Merriam:

| | | | |
|--|---|--------|--------|
| 3-3-X6 | Available for Sale Securities | 50,000 | |
| | Cash | | 50,000 |
| <i>To record the purchase of 5,000 shares of Merriam stock at \$10 per share</i> | | | |

Next, assume that financial statements were being prepared on March 31. By that date, Merriam's stock declined to \$9 per share. Accounting rules require that the investment "be

written down" to current value, with a corresponding charge against OCI. The charge is recorded as follows:

| | | | |
|---------|---|-------|-------|
| 3-31-X6 | <u>Unrealized Gain/Loss - OCI</u> | 5,000 | |
| | <u>Available for Sale Securities</u> | | 5,000 |
| | <i>To record a \$1 per share decrease in the value of 5,000 shares of Merriam stock</i> | | |

This charge against OCI will reduce stockholders' equity (the balance sheet remains in balance with both assets and equity being decreased by like amounts). But, net income is not reduced, as there is no charge to a "normal" income statement account. The rationale here, whether you agree or disagree, is that the net income is not affected by temporary fluctuations in market value -- since the intent is to hold the investment for a longer term period.

During April, the stock of Merriam bounced up \$3 per share to \$12. Webster now needs to prepare this adjustment:

| | | | |
|---------|---|--------|--------|
| 4-30-X6 | <u>Available for Sale Securities</u> | 15,000 | |
| | <u>Unrealized Gain/Loss - OCI</u> | | 15,000 |
| | <i>To record a \$3 per share increase in the value of 5,000 shares of Merriam stock</i> | | |

Notice that the three journal entries now have the available for sale securities valued at \$60,000 (\$50,000 - \$5,000 + \$15,000). This is equal to their market value (\$12 X 5,000 = \$60,000). The OCI has been adjusted for a total of \$10,000 credit (\$5,000 debit and \$15,000 credit). This cumulative credit corresponds to the total increase in value of the original \$50,000 investment.

The preceding illustration assumed a single investment. However, the treatment would be the same even if the available for sale securities consisted of a portfolio of many investments. That is, each and every investment would be adjusted to fair value.

ALTERNATIVE -- A VALUATION ADJUSTMENTS ACCOUNT: As an alternative to directly adjusting the Available for Sale Securities account, some companies may maintain a separate Valuation Adjustments account that is added to or subtracted from the Available for Sale Securities account. The results are the same; the reasons for using the alternative approach is to provide additional information that may be needed for more complex accounting and tax purposes. This coverage is best reserved for more advanced courses.

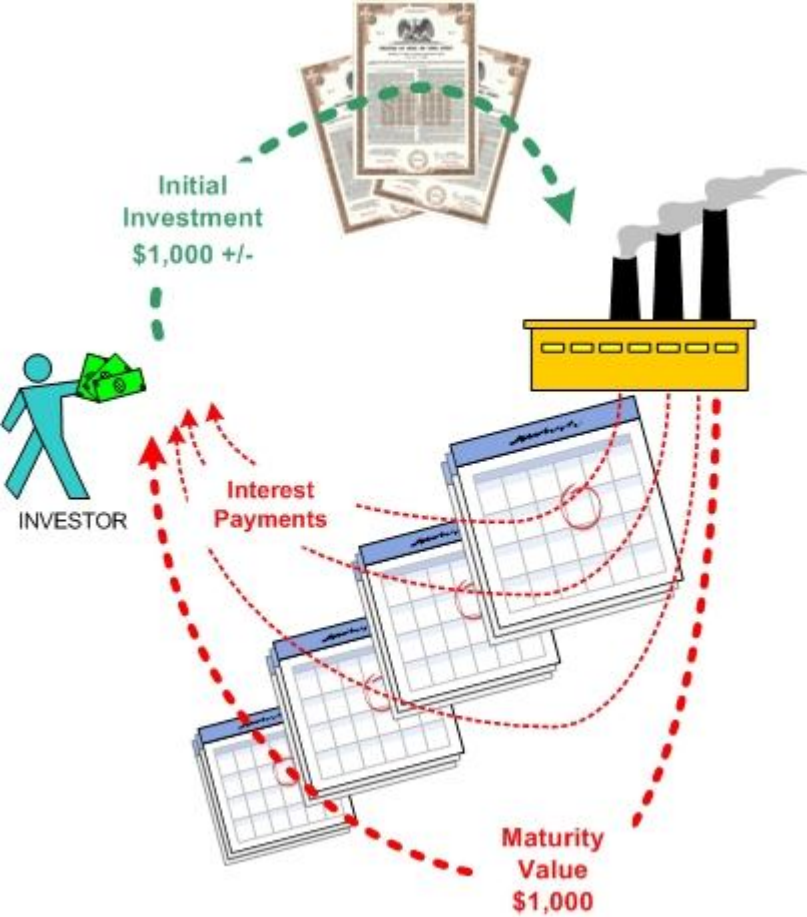
DIVIDENDS AND INTEREST: Dividends or interest received on available for sale securities is reported as income and included in the income statement:

| | | | |
|---------|--|----|----|
| 9-15-X5 | <u>Cash</u> | 75 | |
| | <u>Dividend Income</u> | | 75 |
| | <i>To record receipt of dividend on available for sale security investment</i> | | |

THE BALANCE SHEET APPEARANCE: The above discussion would produce the following balance sheet presentation of available for sale securities at March 31 and April 30. To aid the illustration, all accounts are held constant during the month of April, with the exception of those that change because of the fluctuation in value of Merriam's stock.

WEBSTER COMPANY
Balance Sheet
March 31, 20X6

| ASSETS | | | | LIABILITIES | |
|-------------------------------------|-----------------|----------------|-------------------|-------------------------------------|--|
| Current assets | | | | Current Liabilities | |
| Cash | | \$ 100,000 | | Accounts payable | |
| Trading securities | | 50,000 | | Salaries payable | |
| Accounts receivable | | 75,000 | | Interest payable | |
| Inventories | | 200,000 | | Taxes payable | |
| Prepaid insurance | | <u>25,000</u> | \$ 450,000 | Current portion of note | |
| Long-term Investments | | | | Long-term Liabilities | |
| Available for sale securities | | \$ 45,000 | | Note payable | |
| Cash value of insurance | | <u>10,000</u> | 55,000 | Mortgage liability | |
| Property, Plant & Equip. | | | | Total liabilities | |
| Land | | \$ 25,000 | | | |
| Building and equipment | \$ 150,000 | | | | |
| Less: Accumulated depreciation | <u>(50,000)</u> | <u>100,000</u> | 125,000 | | |
| Intangible Assets | | | | STOCKHOLDERS' EQUITY | |
| Goodwill | | | 275,000 | Capital stock | |
| Other Assets | | | | Retained earnings | |
| Receivable from employee | | | <u>10,000</u> | Accumulated other comprehensive | |
| Total assets | | | <u>\$ 915,000</u> | Total stockholders' equity | |
| | | | | Total Liabilities and equity | |



| ASSETS | |
|-------------------------------------|-------------------|
| Current assets | |
| Cash | \$ 100,000 |
| Trading securities | 50,000 |
| Accounts receivable | 75,000 |
| Inventories | 200,000 |
| Prepaid insurance | <u>25,000</u> |
| Long-term Investments | |
| Available for sale securities | \$ 60,000 |
| Cash value of insurance | <u>10,000</u> |
| Property, Plant & Equip. | |
| Land | \$ 25,000 |
| Building and equipment | \$ 150,000 |
| Less: Accumulated depreciation | <u>(50,000)</u> |
| | <u>100,000</u> |
| Intangible Assets | |
| Goodwill | 20,000 |
| Other Assets | |
| Receivable from employee | 10,000 |
| Total assets | <u>\$ 900,000</u> |

In reviewing this illustration, note that Available for Sale Securities are customarily classified in the Long-term Investments section of the balance sheet. And, take note the the OCI adjustment is merely appended to stockholders' equity.

HELD TO MATURITY SECURITIES

INVESTMENTS IN BONDS: It was noted earlier that certain types of financial instruments have a fixed maturity date; the most typical of such instruments are "bonds." The **held to maturity securities** are to be accounted for by the **amortized cost method**.

To elaborate, if you or I wish to borrow money we would typically approach a bank or other lender and they would likely be able to accommodate our request. But, a corporate giant's credit needs may exceed the lending capacity of any single bank or lender. Therefore, the large corporate borrower may instead issue "bonds," thereby splitting a large loan into many small units. For example, a bond issuer may borrow \$500,000,000 by issuing 500,000 individual bonds with a face amount of \$1,000 each ($500,000 \times \$1,000 = \$500,000,000$). If you or I wished to loan some money to that corporate giant, we could do so by simply buying ("investing in") one or more of their bonds.

The specifics of bonds will be covered in much greater detail in a subsequent chapter, where we will look at a full range of issues from the perspective of the issuer (i.e., borrower). However, for



now we are only going to consider bonds from the investor perspective. You need to understand just a few basics: (1) each bond will have an associated "face value" (e.g., \$1,000) that corresponds to the amount of principal to be paid at maturity, (2) each bond will have a contract or stated interest rate (e.g., 5% -- meaning that the bond pays interest each year equal to 5% of the face amount), and (3) each bond will have a term (e.g., 10 years -- meaning the bonds mature 10 years from the designated issue date). In other words, a \$1,000, 5%, 10-year bond would pay \$50 per year for 10 years (as interest), and then pay \$1,000 at the stated maturity date 10 years after the original date of the bond.

THE ISSUE PRICE: How much would you pay for the above 5%, 10-year bond: Exactly \$1,000, more than \$1,000, or less than \$1,000? The answer to this question depends on many factors, including the credit-worthiness of the issuer, the remaining time to maturity, and the overall market conditions. If the "going rate" of interest for other bonds was 8%, you would likely avoid this 5% bond (or, only buy it if it were issued at a deep discount). On the other hand, the 5% rate might look pretty good if the "going rate" was 3% for other similar bonds (in which case you might actually pay a premium to get the bond). So, bonds might have an **issue price** that is at their **face value** (also known as "**par**"), or above (at a premium) or below (at a discount) face. The price of a bond is typically stated as percentage of face; for example 103 would mean 103% of face, or \$1,030. The specific calculations that are used to determine the price one would pay for a particular bond are revealed in a subsequent chapter.

RECORDING THE INITIAL INVESTMENT: An Investment in Bonds account (at the purchase price plus brokerage fees and other incidental acquisition costs) is established at the time of purchase. Importantly, premiums and discounts are not recorded in separate accounts:

ILLUSTRATION OF BONDS PURCHASED AT PAR:

| | | | |
|---|----------------------------|-------|-------|
| 1-1-X3 | <u>Investment in Bonds</u> | 5,000 | |
| | <u>Cash</u> | | 5,000 |
| <i>To record the purchase of five \$1,000, 5%, 3-year bonds at par -- interest payable semiannually</i> | | | |

The above entry reflects a bond purchase as described, while the following entry reflects the correct accounting for the receipt of the first interest payment after 6 months.

| | | | |
|--|------------------------|-----|-----|
| 6-30-X3 | <u>Cash</u> | 125 | |
| | <u>Interest Income</u> | | 125 |
| <i>To record the receipt of an interest payment (\$5,000 par X .05 interest X 6/12 months)</i> | | | |

Now, the entry that is recorded on June 30 would be repeated with each subsequent interest payment -- continuing through the final interest payment on December 31, 20X5. In addition, at maturity, when the bond principal is repaid, the investor would make this final accounting entry:

| | | | |
|--|----------------------------|-------|-------|
| 12-31-X5 | <u>Cash</u> | 5,000 | |
| | <u>Investment in Bonds</u> | | 5,000 |
| <i>To record the redemption of bond investment at maturity</i> | | | |

ILLUSTRATION OF BONDS PURCHASED AT A PREMIUM: When bonds are purchased at a premium, the investor pays more than the face value up front. However, the bond's maturity value is unchanged; thus, the amount due at maturity is less than the initial issue price! This may seem unfair, but consider that the investor is likely generating higher annual interest receipts than on other available bonds -- that is why the premium was paid to begin with. So, it all sort of comes out even in the end. Assume the same facts as for the above bond illustration, but this time imagine that the market rate of interest was something less than 5%. Now, the 5% bonds would be very attractive, and entice investors to pay a premium:

| | | | |
|--------|---|-------|-------|
| 1-1-X3 | <u>Investment in Bonds</u> | 5,300 | |
| | <u>Cash</u> | | 5,300 |
| | <i>To record the purchase of five \$1,000, 5%, 3-year bonds at 106 -- interest payable semiannually</i> | | |

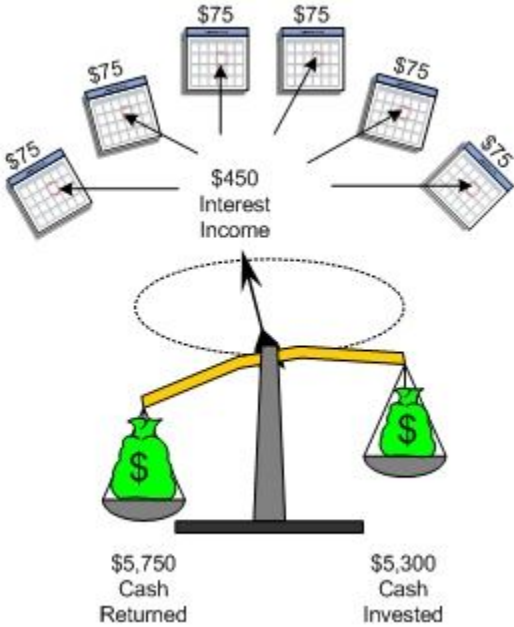
The above entry assumes the investor paid 106% of par ($\$5,000 \times 106\% = \$5,300$). However, remember that only \$5,000 will be repaid at maturity. Thus, the investor will be "out" \$300 over the life of the bond. Thus, accrual accounting dictates that this \$300 "cost" be amortized ("recognized over the life of the bond") as a reduction of the interest income:

| | | | |
|---------|---|-----|----|
| 6-30-X3 | <u>Cash</u> | 125 | |
| | <u>Interest Income</u> | | 75 |
| | <u>Investment in Bonds</u> | | 50 |
| | <i>To record the receipt of an interest payment ($\\$5,000 \text{ par} \times .05 \text{ interest} \times 6/12 \text{ months} = \\125; $\\$300 \text{ premium} \times 6 \text{ months}/36 \text{ months} = \\50 amortization)</i> | | |

The preceding entry is undoubtedly one of the more confusing entries in accounting, and bears additional explanation. Even though \$125 was received, only \$75 is being recorded as interest income. The other \$50 is treated as a return of the initial investment; it corresponds to the premium amortization ($\$300 \text{ premium} \text{ allocated evenly over the life of the bond -- } \$300 \times (6 \text{ months}/36 \text{ months})$) and is credited against the Investment in Bonds account. This process of premium amortization (and the above entry) would be repeated with each interest payment date. Therefore, after three years, the Investment in Bonds account would be reduced to \$5,000 ($\$5,300 - (\$50 \text{ amortization} \times 6 \text{ semiannual interest recordings})$). This method of tracking amortized cost is called the **straight-line method**. There is another conceptually superior approach to amortization, called the effective-interest method, that will be revealed in later chapters. However, it is a bit more complex and the straight-line method presented here is acceptable so long as its results are not materially different than would result under the effective-interest method.

In addition, at maturity, when the bond principal is repaid, the investor would make this final accounting entry:

| | | | |
|----------|--|-------|-------|
| 12-31-X5 | <u>Cash</u> | 5,000 | |
| | <u>Investment in Bonds</u> | | 5,000 |
| | <i>To record the redemption of bond investment at maturity</i> | | |



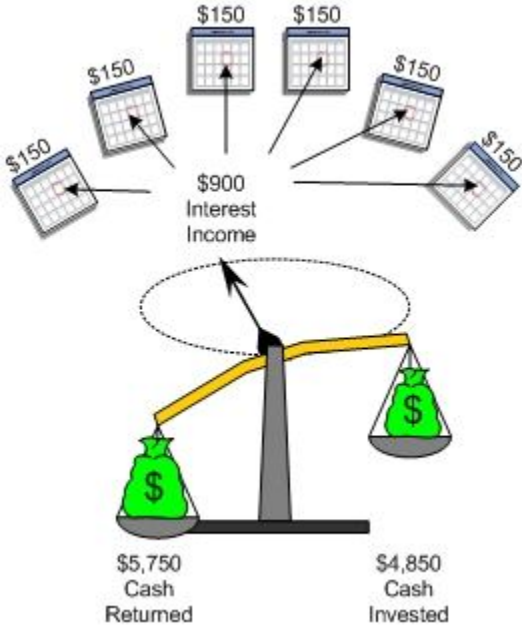
In an attempt to make sense of the above, perhaps it is helpful to reflect on just the "cash out" and the "cash in." How much cash did the investor pay out? It was \$5,300; the amount of the initial investment. How much cash did the investor get back? It was \$5,750; \$125 every 6 months for 3 years and \$5,000 at maturity. What is the difference? It is \$450 (\$5,750 - \$5,300) -- which is equal to the income recognized above (\$75 every 6 months, for 3 years). At its very essence, accounting measures the change in money as income. Bond accounting is no exception, although it is sometimes illusive to see. The following "amortization" table reveals certain facts about the bond investment accounting, and is worth studying to be sure you understand each amount in the table. Be sure to "tie" the amounts in the table to the entries above:

| | A | B | C | D | E | F | G | H | I |
|----|---|-------------|---|----------------------|----------|------------------------|----------|-----------------------------|-------------------|
| 1 | | | | | | | | | |
| 2 | | Date | | Cash Received | | Interest Income | | Premium Amortization | Investment |
| 3 | | 1-1-X3 | | \$ (5,300) cr | | | | | \$ |
| 4 | | 6-30-X3 | | 125 dr | \$ 75 cr | | \$ 50 cr | | |
| 5 | | 12-31-X3 | | 125 dr | 75 cr | | 50 cr | | |
| 6 | | 6-30-X4 | | 125 dr | 75 cr | | 50 cr | | |
| 7 | | 12-31-X4 | | 125 dr | 75 cr | | 50 cr | | |
| 8 | | 6-30-X5 | | 125 dr | 75 cr | | 50 cr | | |
| 9 | | 12-31-X5 | | 125 dr | 75 cr | | 50 cr | | |
| 10 | | 12-31-X5 | | 5,000 dr | - | | - | | |
| 11 | | | | \$ 450 | \$ 450 | | \$ 300 | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |

Sometimes, complex topics like this are easier to understand when you think about the balance sheet impact of a transaction. For example, on 12-31-X4, Cash is increased \$125, but the Investment in Bond account is decreased by \$50 (dropping from \$5,150 to \$5,100). Thus, total assets increased by a net of \$75. The balance sheet remains in balance because the corresponding \$75 of interest income causes a corresponding increase in retained earnings.

ILLUSTRATION OF BONDS PURCHASED AT A DISCOUNT: The **discount** scenario is very similar to the premium scenario, but "in reverse." When bonds are purchased at a discount, the investor pays less than the face value up front. However, the bond's maturity value is unchanged; thus, the amount due at maturity is more than the initial issue price! This may seem like a bargain, but consider that the investor is likely getting lower annual interest receipts than is available on other bonds -- that is why the discount existed in the first place. Assume the same facts as for the previous bond illustration, except imagine that the market rate of interest was something more than 5%. Now, the 5% bonds would not be very attractive, and investors would only be willing to buy them at a discount:

| | | | |
|--------|-------------------------------------|--|-------|
| 1-1-X3 | Investment in Bonds | | 4,850 |
| | Cash | | 4,850 |



| | | |
|--|--|--|
| <i>To record the purchase of five \$1,000, 5%, 3-year bonds at 97 -- interest payable semiannually</i> | | |
|--|--|--|

The above entry assumes the investor paid 97% of par ($\$5,000 \times 97\% = \$4,850$). However, remember that a full \$5,000 will be repaid at maturity. Thus, the investor will get an additional \$150 over the life of the bond. Accrual accounting dictates that this \$150 "benefit" be recognized over the life of the bond as an increase in interest income:

| | | | |
|---|----------------------------|-----|-----|
| 6-30-X3 | <u>Cash</u> | 125 | |
| | <u>Investment in Bonds</u> | 25 | |
| | <u>Interest Income</u> | | 150 |
| <i>To record the receipt of an interest payment (\$5,000 par X .05 interest X 6/12 months = \$125; \$150 discount X 6 months/36 months = \$25 amortization)</i> | | | |

The preceding entry would be repeated at each interest payment date. Again, further explanation may prove helpful. In addition to the \$125 received, another \$25 of interest income is recorded. The other \$25 is added to the Investment in Bonds account; as it corresponds to the discount amortization ($\$150$ discount allocated evenly over the life of the bond -- $\$150 \times (6 \text{ months}/36 \text{ months})$). This process of discount amortization would be repeated with each interest payment. Therefore, after three years, the Investment in Bonds account would be increased to \$5,000 ($\$4,850 + (\$25 \text{ amortization} \times 6 \text{ semiannual interest recordings})$). This is another example of the straight-line method of amortization since the amount of interest is the same each period.

When the bond principal is repaid at maturity, the investor would also make this final accounting entry:

| | | | |
|--|----------------------------|-------|-------|
| 12-31-X5 | <u>Cash</u> | 5,000 | |
| | <u>Investment in Bonds</u> | | 5,000 |
| <i>To record the redemption of bond investment at maturity</i> | | | |

Let's consider the "cash out" and the "cash in." How much cash did the investor pay out? It was \$4,850; the amount of the initial investment. How much cash did the investor get back? It is the



same as it was in the preceding illustration -- \$5,750; \$125 every 6 months for 3 years and \$5,000 at maturity. What is the difference? It is \$900 (\$5,750 - \$4,850) -- which is equal to the income recognized above (\$150 every 6 months, for 3 years). Be sure to "tie" the amounts in the following amortization table to

the related entries:

| | A | B | C | D | E | F | G | H | I | J | K |
|----|---|-------------|----------------------|---------------|------------------------|---|------------------------------|---|----------------------------|---|---|
| 1 | | | | | | | | | | | |
| 2 | | Date | Cash Received | | Interest Income | | Discount Amortization | | Investment in Bonds | | |
| 3 | | 1-1-X3 | \$ (4,850) cr | | | | | | \$ 4,850 | | |
| 4 | | 6-30-X3 | 125 dr | \$ 150 cr | \$ 25 dr | | | | 4,875 | | |
| 5 | | 12-31-X3 | 125 dr | 150 cr | \$ 25 dr | | | | 4,900 | | |
| 6 | | 6-30-X4 | 125 dr | 150 cr | \$ 25 dr | | | | 4,925 | | |
| 7 | | 12-31-X4 | 125 dr | 150 cr | \$ 25 dr | | | | 4,950 | | |
| 8 | | 6-30-X5 | 125 dr | 150 cr | \$ 25 dr | | | | 4,975 | | |
| 9 | | 12-31-X5 | 125 dr | 150 cr | \$ 25 dr | | | | 5,000 | | |
| 10 | | 12-31-X5 | 5,000 dr | - | - | | | | - | | |
| 11 | | | <u>\$ 900</u> | <u>\$ 900</u> | <u>\$ 150</u> | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |

Can you picture the balance sheet impact on 6-30-X5? Cash increased by \$125, and the Investment in Bond account increased \$25. Thus, total assets increased by \$150. The balance sheet remains in balance because the corresponding \$150 of interest income causes a corresponding increase in retained earnings.

THE EQUITY METHOD OF ACCOUNTING

THE EQUITY METHOD: On occasion, an investor may acquire enough ownership in the stock of another company to permit the exercise of "significant influence" over the investee company. For example, the investor has some direction over corporate policy, and can sway the election of the board of directors and other matters of corporate governance and decision making. Generally, this is deemed to occur when one company owns more than 20% of the stock of the other -- although the ultimate decision about the existence of "significant influence" remains a matter of judgment based on an assessment of all facts and circumstances. Once significant influence is present, generally accepted accounting principles require that the investment be accounted for under the "equity method" (rather than the methods previously discussed, such as those applicable to trading securities or available for sale securities).

With the equity method, the accounting for an investment is set to track the "equity" of the investee. That is, when the investee makes money (and experiences a corresponding increase in equity), the investor will similarly record its share of that profit (and vice-versa for a loss). The initial accounting commences by recording the investment at cost:

| | | | |
|--------|-------------------|--------|--------|
| 4-1-X3 | <u>Investment</u> | 50,000 | |
| | <u>Cash</u> | | 50,000 |



| | | |
|--|--|--|
| | | |
| <i>To record the purchase of 5,000 shares of Legg stock at \$10 per share. Legg has 20,000 shares outstanding, and the investment in 25% of Legg ($5,000/20,000 = 25\%$) is sufficient to give the investor significant influence</i> | | |

Next, assume that Legg reports income for the three-month period ending June 30, 20X3, in the amount of \$10,000. The investor would simultaneously record its "share" of this reported income as follows:

| | | | |
|---------|--|--|-------|
| 6-30-X3 | <u>Investment</u> | | 2,500 |
| | <u>Investment Income</u> | | 2,500 |
| | <i>To record investor's share of Legg's reported income ($25\% \times \\$10,000$)</i> | | |

Importantly, this entry causes the Investment account to increase by the investor's share of the investee's increase in its own equity (i.e., Legg's equity increased \$10,000, and the entry causes the investor's Investment account to increase by \$2,500), thus the name "equity method." Notice, too, that the credit causes the investor to recognize income of \$2,500, again corresponding to its share of Legg's reported income for the period. Of course, a loss would be reported in just the opposite fashion.

When Legg pays out dividends (and decreases its equity), the investor will need to reduce its Investment account:

| | | | |
|---------|--|--|-------|
| 7-01-X3 | <u>Cash</u> | | 1,000 |
| | <u>Investment</u> | | 1,000 |
| | <i>To record the receipt of \$1,000 in dividends from Legg -- Legg declared and paid a total of \$4,000 ($\\$4,000 \times 25\% = \\$1,000$)</i> | | |

The above entry is based on the assumption that Legg declared and paid a \$4,000 dividend on July 1. This treats dividends as a return of the investment (not income, because the income is recorded as it is earned rather than when distributed). In the case of dividends, notice that the investee's equity reduction is met with a corresponding proportionate reduction of the Investment account on the books of the investor.

Note that market-value adjustments are usually not utilized when the equity method is employed. Essentially, the Investment account tracks the equity of the investee, increasing as the investee reports income and decreasing as the investee distributes dividends.

INVESTMENTS REQUIRING CONSOLIDATION

CONCEPT OF CONTROL: You only need to casually review the pages of most any business press before you will notice a story about one business buying another. Such acquisitions are common and number in the thousands annually. Typically, such transactions are effected rather simply, by the acquirer simply buying a majority of the stock of the target company. This majority position enables the purchaser to exercise control over the other company; electing a majority of the board of directors, which in turn sets the direction for the company. Control is ordinarily

established once ownership jumps over the 50% mark, but management contracts and other similar arrangements may allow control to occur at other levels.

ECONOMIC ENTITY CONCEPT AND CONTROL: The acquired company may continue to operate, and maintain its own legal existence. In other words, assume Premier Tools Company bought 100% of the stock of Sledge Hammer Company. Sledge (now a "subsidiary" of Premier the "parent") will continue to operate and maintain its own legal existence. It will merely be under new ownership. But, even though it is a separate legal entity, it is viewed by accountants as part of a larger "economic entity." The intertwining of ownership means that Parent and Sub are "one" as it relates to economic performance and outcomes. Therefore, accounting rules require that parent companies "consolidate" their financial reports, and include all the assets, liabilities, and operating results of all controlled subsidiaries. When you look at the financial statements of a conglomerate like General Electric, what you are actually seeing is the consolidated picture of many separate companies owned by GE.

ACCOUNTING ISSUES: Although the processes of consolidation can become quite complex (at many universities, an entire course may be devoted to this subject alone), the basic principles are straightforward. Assume that Premier's "separate" (before consolidating) balance sheet, immediately after purchasing 100% of Sledge's stock, appeared as follows:

| PREMIER TOOLS COMPANY | | | |
|-------------------------------------|---------------------|-------------------------------------|------------|
| Balance Sheet | | | |
| March 31, 20X3 | | | |
| ASSETS | | LIABILITIES | |
| Current assets | | Current Liabilities | |
| Cash | \$ 100,000 | Accounts payable | \$ 80 |
| Trading securities | 70,000 | Salaries payable | 10 |
| Accounts receivable | 80,000 | Interest payable | 10 |
| Inventories | <u>200,000</u> | | <u>100</u> |
| | \$ 450,000 | Long-term Liabilities | |
| Long-term Investments | | Note payable | \$ 190 |
| Investment in Sledge | 400,000 | Mortgage liability | <u>110</u> |
| Property, Plant & Equip. | | Total liabilities | |
| Land | \$ 25,000 | STOCKHOLDERS' EQUITY | |
| Building and equipment (net) | <u>100,000</u> | Capital stock | \$ 300 |
| | 125,000 | Retained earnings | <u>500</u> |
| Intangible Assets | | Total stockholders' equity | |
| Patent | <u>225,000</u> | Total Liabilities and equity | |
| Total assets | <u>\$ 1,200,000</u> | | |

Notice the highlighted Investment in Sledge account above, indicating that Premier paid \$400,000 for the stock of Sledge. Do take note that the \$400,000 was not paid to Sledge; it was paid to the former owners of Sledge. Sledge merely has a new owner, but it is otherwise "unchanged" by the acquisition. Assume Sledge's separate balance sheet looks like this:



| SLEDGE HAMMER COMPANY | | | |
|-------------------------------------|-------------------|-------------------------------------|--|
| Balance Sheet | | | |
| March 31, 20X3 | | | |
| ASSETS | | LIABILITIES | |
| Current assets | | Current Liabilities | |
| Cash | \$ 50,000 | Accounts payable | |
| Accounts receivable | 30,000 | Salaries payable | |
| Inventories | <u>20,000</u> | Long-term Liabilities | |
| | \$ 100,000 | Note payable | |
| Property, Plant & Equip. | | Total liabilities | |
| Land | \$ 75,000 | STOCKHOLDERS' EQUITY | |
| Building and equipment (net) | <u>275,000</u> | Capital stock | |
| | <u>350,000</u> | Retained earnings | |
| | | Total stockholders' equity | |
| Total assets | <u>\$ 450,000</u> | Total Liabilities and equity | |

Let's examine carefully what Premier got for its \$400,000 investment. Premier became the sole owner of Sledge, which has assets that are reported on Sledge's books at \$450,000, and liabilities that are reported at \$150,000. The resulting net book value ($\$450,000 - \$150,000 = \$300,000$) is reflected as Sledge's total stockholders' equity. Now, you notice that Premier paid \$100,000 in excess of book value for Sledge ($\$400,000 - \$300,000$). This excess is quite common, and is often called "purchase differential" (the difference between the price paid for another company, and the net book value of its assets and liabilities). Why would Premier pay such a premium? Remember that assets and liabilities are not necessarily reported at fair value. For example, the land held by Sledge is reported at its cost, and its current value may differ (let's assume Sledge's land is really worth \$110,000, or \$35,000 more than its carrying value of \$75,000). That would explain part of the purchase differential. Let us assume that all other identifiable assets and liabilities are carried at their fair values. But what about the other \$65,000 of purchase differential ($\$100,000$ total differential minus the \$35,000 attributable to specifically identified assets or liabilities)?

GOODWILL: Whenever one business buys another, and pays more than the fair value of all the identifiable pieces, the excess is termed "goodwill." This has always struck me as an odd term -- but I suppose it is easier to attach this odd name, in lieu of using a more descriptive account title like: Excess of Purchase Price Over Fair Value of Identifiable Assets Acquired in a Purchase Business Combination. So, when you see Goodwill in the corporate accounts, you now know what it means. It only arises from the purchase of one business by another. Many companies may have implicit goodwill, but it is not recorded until it arises from an actual acquisition (that is, it is bought and paid for in an arm's-length transaction).

Perhaps we should consider why someone would be willing to pay such a premium. There are many possible scenarios, but suffice it to say that many businesses are worth more than their identifiable pieces. A movie rental store, with its business location and established customer base, is perhaps worth more than the movies, display equipment, and check-out stands it holds. A law firm is hopefully worth more than its desks, books, and computers. An oil company is likely far more valuable than its drilling and pumping gear. Consider the value of a brand name that may not be on the books but has instead been established by years of marketing. And, let's not

forget that a business combination may eliminate some amount of competition; some businesses will pay a lot to be rid of a competitor.

THE CONSOLIDATED BALANCE SHEET: No matter how goodwill arises, the accountant's challenge is to measure and report it in the consolidated statements -- along with all the other assets and liabilities of the parent and sub. Study the following consolidated balance sheet for Premier and Sledge, clicking on the account title links to see how the related dollar amounts are calculated:

**Premier Tools Company and Consolidated Subsidiaries
Balance Sheet
March 31, 20X3**

| Assets | | | Liabilities | | |
|--|----------------|----------------|------------------------------------|----------------|----------------|
| <u>Current Assets</u> | | | <u>Current Liabilities</u> | | |
| Cash | \$150,000 | | Accounts payable | \$160,000 | |
| Trading securities | 70,000 | | Salaries payable | 30,000 | |
| Accounts receivable | 110,000 | | Interest payable | <u>10,000</u> | \$200,000 |
| Inventories | <u>220,000</u> | \$550,000 | <u>Long-term Liabilities</u> | | |
| <u>Property, Plant & Equip.</u> | | | Note payable | \$240,000 | |
| Land | \$135,000 | | Mortgage liability | <u>110,000</u> | <u>350,000</u> |
| Building and equipment (net) | <u>375,000</u> | 510,000 | Total liabilities | | |
| | | | \$550,000 | | |
| <u>Intangible Assets</u> | | | Stockholders' equity | | |
| Patent | \$225,000 | | Capital stock | \$300,000 | |
| Goodwill | <u>65,000</u> | <u>290,000</u> | Retained earnings | <u>500,000</u> | |
| | | | Total stockholders' equity | | |
| | | | <u>800,000</u> | | |
| Total assets | | | Total Liabilities and equity | | |
| \$1,350,000 | | | \$1,350,000 | | |

In the above illustration, take note of several important points. First, the Investment in Sledge account is absent because it has effectively been replaced with the individual assets and liabilities of Sledge. Second, the assets acquired from Sledge, including goodwill, have been pulled into the consolidated balance sheet at the price paid for them (for example, take special note of the calculations relating to the Land account). Finally, note the consolidated stockholders' equity amounts are the same as from Premier's separate balance sheet. This result is expected since Premier's separate accounts include the ownership of Sledge via the Investment in Sledge account (which has now been replaced by the actual assets and liabilities of Sledge).

It may appear a bit mysterious as to how the above balance sheet "balances" -- there is an orderly worksheet process that can be shown to explain how this consolidated balance sheet comes together, and that is best reserved for advanced accounting classes -- for now simply understand that the consolidated balance sheet encompasses the assets (excluding the investment account), liabilities, and equity of the parent at their dollar amounts reflected on the parent's books, along with the assets (including goodwill) and liabilities of the sub adjusted to their values based on the price paid by the parent for its ownership in the sub.

THE CONSOLIDATED INCOME STATEMENT: Although it will not be illustrated here, it is important to know that the income statements of the parent and sub will be consolidated post-acquisition. That is, in future months, quarters, and years, the consolidated income statement will reflect the revenues and expenses of both the parent and sub added together. This process is ordinarily straightforward. But, an occasional wrinkle will arise. For instance, if the parent paid a premium in the acquisition for depreciable assets and/or inventory, the amount of consolidated

depreciation expense and/or cost of goods sold may need to be tweaked to reflect alternative amounts from those reported in the separate statements. And, if the parent and sub have done business with one another, adjustments will be needed to avoid reporting intercompany transactions. We never want to report internal transactions between affiliates as actual sales. To do so can easily and rather obviously open the door to manipulated financial results.



Property, Plant & Equipment

| | | | |
|--------------------------------|--------------------|------------------|--------------|
| Land | | \$ 1,000,000 | |
| Buildings | \$ 2,300,000 | | |
| Less: Accumulated depreciation | <u>(1,500,000)</u> | 800,000 | |
| Equipment | \$ 4,000,000 | | |
| Less: Accumulated depreciation | <u>(1,800,000)</u> | <u>2,200,000</u> | \$ 4,000,000 |

chapter

10

Property, Plant, and Equipment

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "property, plant, and equipment" chapter are to learn about:

- [Measurement of costs appropriately assigned to property, plant, and equipment.](#)
- [Equipment leases and the accounting implications.](#)
- [Principles relating to service life and depreciation.](#)
- [Depreciation methodology and terminology.](#)
- [Straight-line depreciation.](#)
- [Units-of-output depreciation.](#)
- [Double-declining balance depreciation.](#)
- [Sum-of-the-years'-digits depreciation.](#)
- [Unique features of depreciation under the tax code.](#)

DISCUSSION

WHAT COSTS ARE INCLUDED IN PROPERTY, PLANT, AND EQUIPMENT?

PROPERTY, PLANT, AND EQUIPMENT: Items of property, plant, and equipment are included in a separate category on a classified balance sheet. Property, plant, and equipment typically follows the Long-term Investments section, and is oftentimes simply referred to as "PP&E." Items appropriately included in this section of the balance sheet are the physical assets *deployed* in the productive operation of the business, like land, buildings, and equipment. Note that idle facilities or land held for speculation may more appropriately be listed in some other category on the balance sheet (like long-term investments) since these items are not in productive use. Within the PP&E section, the custom is to list PP&E according to expected life -- meaning that land (with an indefinite life) comes first, followed by buildings, then equipment. For some businesses, the amount of PP&E can be substantial. This is the case for firms that have heavy manufacturing operations or significant real estate holdings. Other businesses, say those that are service or intellectual based, may actually have very little to show within this balance sheet category. At right is an example of how a typical PP&E section of the balance sheet might appear. In the alternative, some companies may relegate this level of detailed disclosure into a note accompanying the financial statements, and instead just report a single number for "property, plant, and equipment, net of accumulated depreciation" on the face of the balance sheet.



COST TO ASSIGN TO ITEMS OF PROPERTY, PLANT, AND

EQUIPMENT: The correct amount of cost to allocate to PP&E is based on a fairly straight-forward rule -- to identify those expenditures which are ordinary and necessary to get the item in place and in condition for its intended use. Such amounts include the purchase price (less any negotiated discounts), permits, freight, ordinary installation, initial setup/calibration/programming, and other normal costs associated with getting the item ready to use. These costs are termed "**capital expenditures**." In contrast, other expenditures may arise which were not "ordinary and necessary," or benefit only the immediate period. These costs should be expensed as incurred. An example is repair of abnormal damage caused during installation of equipment.

To illustrate, assume that Pechlat Corporation purchased a new lathe. The lathe had a list price of \$90,000, but Pechlat negotiated a 10% discount. In addition, Pechlat agreed to pay freight and installation of \$5,000. During installation, the lathe's spindle was bent and had to be replaced for \$2,000. The journal entry to record this transaction is:

| | | | |
|----------|--|--------|--------|
| 03-17-X4 | Equipment | 86,000 | |
| | Repair Expense | 2,000 | |
| | Cash | | 88,000 |
| | <i>Paid for equipment (($\\$90,000 \times .90$) + $\\$5,000$), and repair cost</i> | | |

INTEREST COST: Amounts paid to finance the *purchase* of property, plant, and equipment are expensed. An exception is interest incurred on funds borrowed to finance *construction* of plant and equipment. Such interest related to the *period of time during which active construction is ongoing* is capitalized. Interest capitalization rules are quite complex, and are typically covered in detail in intermediate accounting courses.

TRAINING COSTS: The acquisition of new machinery is oftentimes accompanied by employee training regarding the correct operating procedures for the device. The normal rule is that training costs are expensed. The logic here is that the training attaches to the employee not the machine, and the employee is not owned by the company. On rare occasion, justification for capitalization of very specialized training costs (where the training is company specific and benefits many periods) is made, but this is the exception rather than the rule.

A DISTINCTION BETWEEN LAND AND LAND IMPROVEMENTS: When acquiring land, certain costs are again ordinary and necessary and should be assigned to Land. These costs obviously will include the cost of the land, plus title fees, legal fees, survey costs, and zoning fees. But other more exotic costs come into play and should be added to the Land account; the list can grow long. For example, costs to grade and drain land to get it ready for construction can be construed as part of the land cost. Likewise, the cost to raze an old structure from the land may be added to the land account (net of any salvage value that may be extracted from the likes of old bricks or steel, etc.). All of these costs may be considered to be ordinary and necessary costs to get the land ready for its intended use. However, at some point, the costs shift to another category -- "**land improvements**." Land Improvements is another item of PP&E and includes the cost of parking lots, sidewalks, landscaping, irrigation systems, and similar expenditures. Why do you suppose it is important to separate land and land improvement costs? The answer to this question will become clear when we consider depreciation issues. As you will soon see, land is considered to have an indefinite life and is not depreciated. Alternatively, you know that parking lots, irrigation systems, etc. do wear out and must therefore be depreciated.

LUMP-SUM ACQUISITIONS: A company may buy an existing manufacturing facility, complete with land, buildings, and equipment. The negotiated price is usually a "turnkey" deal for all the components. While the **lump-sum purchase** price for the package of assets is readily determinable, assigning costs to the individual components can become problematic. Yet, for accounting purposes, it is necessary to allocate the total purchase price to the individual assets acquired. This requires a pro-rata allocation of the purchase price to the individual components. This concept is best illustrated with an example:

Suppose Dibitanzi Corporation acquired a manufacturing facility from Malloy Corporation for the grand total of \$2,000,000. To keep it simple, we will assume that the facility consisted of land, building, and equipment. If Dibitanzi had acquired the land separately, it is estimated that its fair value would be \$500,000. The fair value of the building, by itself, is estimated to be \$750,000. Finally, the equipment would cost \$1,250,000 if purchased independent of the "package" deal. The accounting task is to allocate the cost of \$2,000,000 to the three separate pieces. If you sum the perceived values of the components, you will note that it comes to \$2,500,000 (\$500,000 + \$750,000 + \$1,250,000). Yet, the actual purchase price was only 80% of this amount:



The above calculations form the basis for the following entry:

| | | | |
|----------|--|-----------|-----------|
| 05-12-X7 | <u>Land</u> | 400,000 | |
| | <u>Building</u> | 600,000 | |
| | <u>Equipment</u> | 1,000,000 | |
| | <u>Cash</u> | | 2,000,000 |
| | <i>Purchased land, building, and equipment</i> | | |



PROFESSIONAL JUDGMENT: To many, accounting seems to be strictly mechanical. As you delve deeper into the subject, you will begin to observe an ever-increasing need for the exercise of judgment. Consider the above entry, which

causes the land, building, and equipment to be recorded at the historical cost of \$2,000,000, regardless of the perceived higher fair value. Remember the historical cost principle -- which dictates that (most) assets are to be recorded at their cost. The fact that fair value is perceived to be greater than cost does not justify a departure from the historical cost principle. But, professional judgment was required to estimate the fair value of the components for purposes of making the allocation. Such judgments are oftentimes an inescapable part of the accounting process.

You will observe that different estimates of fair value could have been used, and that would cause a different proportion of the \$2,000,000 to be assigned to each piece, but the total allocation would still come to exactly \$2,000,000. So, why does the allocation really matter? It is actually very important when you consider that the amount assigned to land will not be depreciated, while amounts assigned to building and equipment will be depreciated at different rates. Thus, the future pattern of depreciation expense (and therefore income!) will be altered by this initial allocation. You no doubt have a keen sense that investors pay close attention to income. Thus, you can start to sense how important judgment becomes in the accounting process.

MATERIALITY CONSIDERATIONS: Look around your room and consider how many expenditures were for long-lived assets that were relatively minor in value -- perhaps a trash can, a telephone, a picture on the wall, and so forth. If your room was a business, would you capitalize those expenditures and depreciate them over their useful life? Or, would you decide that the cost of record keeping exceeded the benefit? If so, you might choose to simply expense the cost as incurred (as many businesses do). The reason is "materiality;" no matter which way you account for the cost, it is not apt to bear on anyone's decision-making process about the company. Again, all of this discussion is to highlight the degree to which professional judgment comes into play in the accounting process.

EQUIPMENT LEASES

LEASES: Many businesses acquire needed assets via a lease arrangement. With a lease arrangement, the lessee pays money to the lessor for the right to use an asset for a stated period of time. In a strict legal context, the lessor remains the owner of the property. However, the accounting for such transactions looks through the legal form, and is instead based upon the economic substance of the agreement.

If a lease effectively transfers the "risks and rewards" of ownership to the lessee, then the applicable accounting rules dictate that the lessee account for the leased asset as though it has been purchased. The lessee records the leased asset as an item of property, plant, and equipment, which is then depreciated over its useful life to the lessee. The lessee must also record a liability reflecting the obligation to make continuing payments under the lease agreement, similar to the accounting for a note payable. Such transactions are termed "capital leases." You should note that the basic accounting outcome is as though the lease agreement represents the purchase of an asset, with a corresponding obligation to pay it off over time (the same basic approach as if the asset were purchased on credit).

Of course, not all leases effectively transfer the risks and rewards of ownership to the lessee. The determination of risk/reward transfer is based upon evaluation of very specific criteria: (1) ownership transfer of the asset by the end of the lease term, (2) minimum lease payments with a discounted present value that is 90% or more of the fair value of the asset, (3) a lease term that is at least 75% of the life of the asset, or (4) some bargain purchase element that kicks in before the



end of the lease. If a lease does not include at least one of the preceding conditions, it is deemed not to be a "capital lease," and is thus considered to be an "operating lease." You will be relieved to know that you have already studied "operating leases" in the earliest chapters of this book -- that is, rent is simply recorded as rent expense as incurred -- the underlying asset is not reported on the books of the lessee.

Your life's experiences may give you a basis for extending your understanding of leases. If you have rented an apartment at some point in your life, consider how it would be accounted for by you -- as a capital lease or an operating lease? None of the "4" criteria was likely met; thus, your agreement was an operating lease. In the alternative, you may have leased a car. It is possible (not assured) that your lease agreement would trigger one of the four criteria. If you were to follow generally accepted accounting principles for such an agreement, you would have recorded both an asset (the car) and the liability (obligation under capital lease) on your books the day you drove away from the dealer (in debit/credit context, you debit the asset and credit the liability for an amount that approximates the fair value -- I'll leave those details for intermediate accounting courses).

Now, you may wonder why all the trouble over lease accounting? However, if you think about an industry that relies heavily on capital lease agreements, like the commercial airlines, you can quickly come to see the importance of reporting the planes and the fixed commitment to pay for them. To exclude them would render the financial statements not representative of the true nature of the business operation.

SERVICE LIFE AND COST ALLOCATION

DEPRECIATION: Casually, people will speak of depreciation as a decline in value or using-up of an asset. However, in accounting jargon, the term is meant to refer to the allocation of an asset's cost to the accounting periods benefited -- not an attempt to value the asset. Thus, it is often said that depreciation is a process of "allocation" not "valuation." We have already addressed how an asset's cost is determined. Next, we must consider how to determine the accounting periods benefited (i.e., "service life").

Determining the service life of an asset is an essential first step in calculating the amount of depreciation attributable to a specific period. Several factors must be considered:

Physical deterioration -- "Wear and tear" will eventually cause most assets to simply wear out and become useless. Thus, physical deterioration serves to establish an outer limit on the service life of an asset.

Obsolescence -- The shortening of service life due to technological advances that cause an asset to become out of date and less desirable.

Inadequacy -- An economic determinant of service life which is relevant when an asset is no longer fast enough or large enough to fill the competitive and productive needs of a company.

Factors such as the above must be considered in determining the service life of a particular asset. In some cases, all three factors must be considered. In other cases, one factor alone may control the determination of service life. Importantly, you should observe that service life can be completely different from physical life. For example, how many computers have you owned, and why did you replace an old one? In all likelihood, its service life to you had been exhausted even though it was still physically functional.

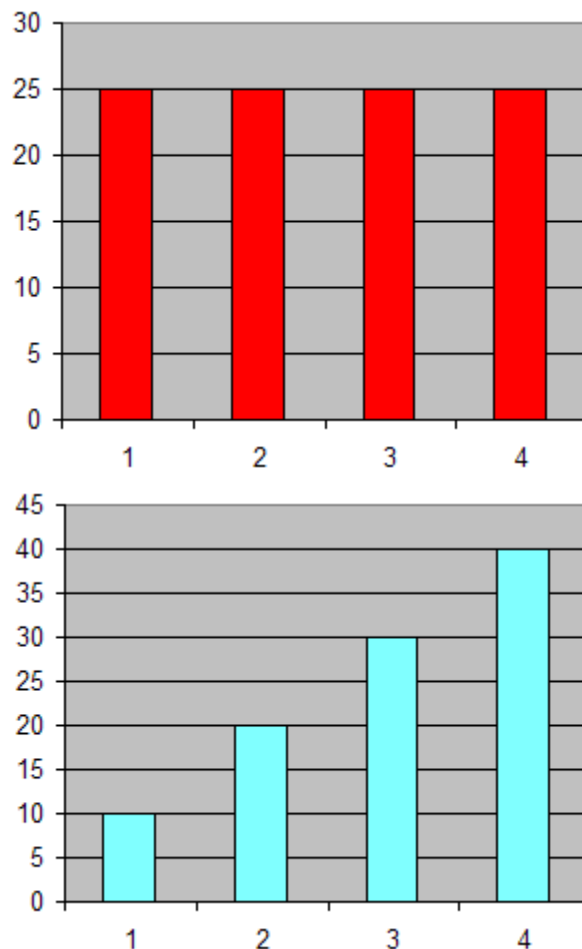
Recognize that some assets have an indefinite (or permanent) life. One prominent example is land. Accordingly, it is not considered to be a depreciable asset.

DEPRECIATION METHODOLOGY

After the cost and service life of an asset are determined, it is time to move on to the choice of depreciation method. The depreciation method is simply the pattern by which the cost is allocated to each of the periods involved in the service life. You may be surprised to learn that there are many methods from which to choose. Four popular methods are: (1) straight-line, (2) units-of-output, (3) double-declining-balance, and (4) sum-of-the-years'-digits.

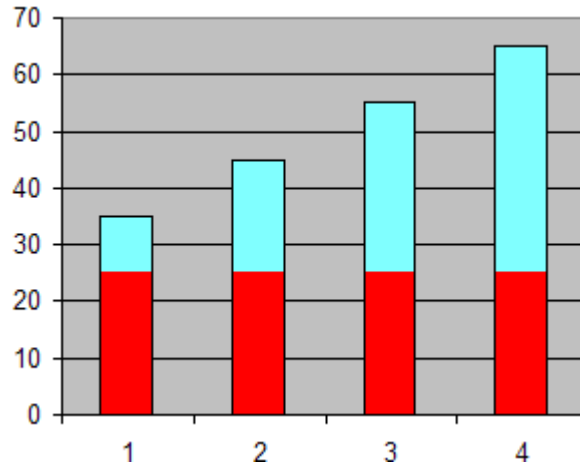
Before considering the specifics of these methods, you may wonder why so many choices. Perhaps a basic illustration will help address this concern. Let us begin by assuming that a \$100 asset is to be depreciated over 4 years. Under one method, which happens to be the straight-line approach, depreciation expense is simply \$25 per year (shown in red below). This may seem very logical -- especially if the asset is used more or less uniformly over the 4 year period. But, what if maintenance costs (shown in blue) are also considered? As an asset ages, it is not uncommon for maintenance costs to expand. Let's assume the first year maintenance is \$10, and rises by \$10 each year as follows:

STRAIGHT-LINE DEPRECIATION PATTERN (red) and MAINTENANCE COSTS (blue):



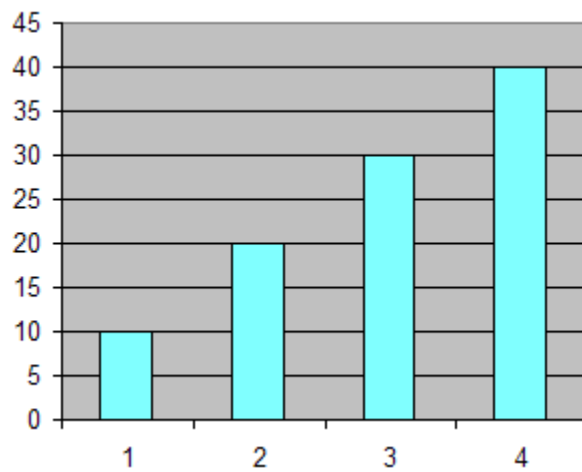
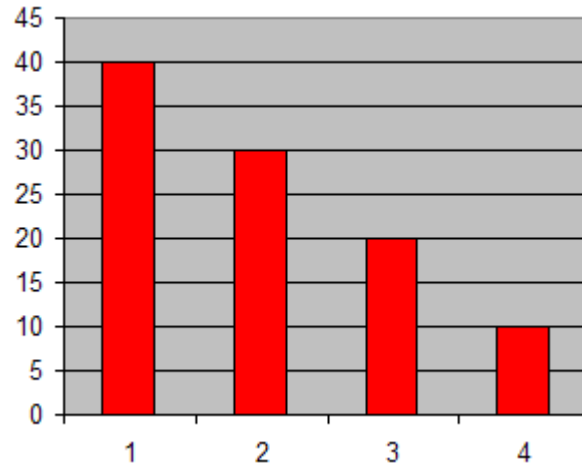
Combining the two costs together reveals an interesting picture, showing that total cost rises over time, even though the usage is deemed to be constant.

COMBINED COSTS:

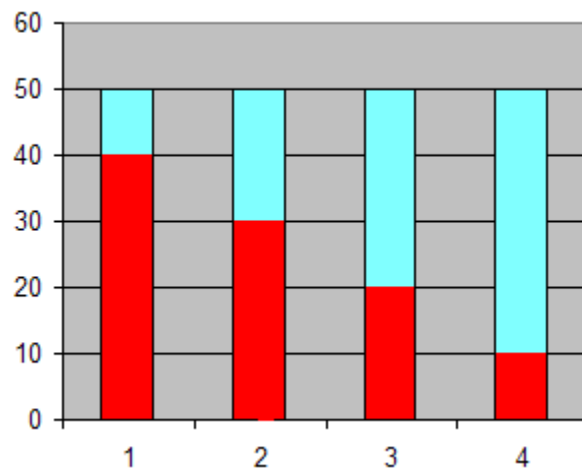


The following graphics show what happens if we run the same scenario with an alternative depreciation method called sum-of-the-years'-digits (the mechanics will be covered shortly):

SUM-OF-THE-YEARS' DIGITS DEPRECIATION PATTERN (red) and MAINTENANCE COSTS (blue):



COMBINED COSTS:



Now, the combined cost is level, matching the unit's usage/cost and perceived benefit to the company. Arguably, then, the sum-of-the-years' digits approach achieves a better matching of total costs and benefits *in this particular scenario*. Does this mean that sum-of-the-years' digits is better? Certainly not! The point is simply to show an example that brings into focus why there

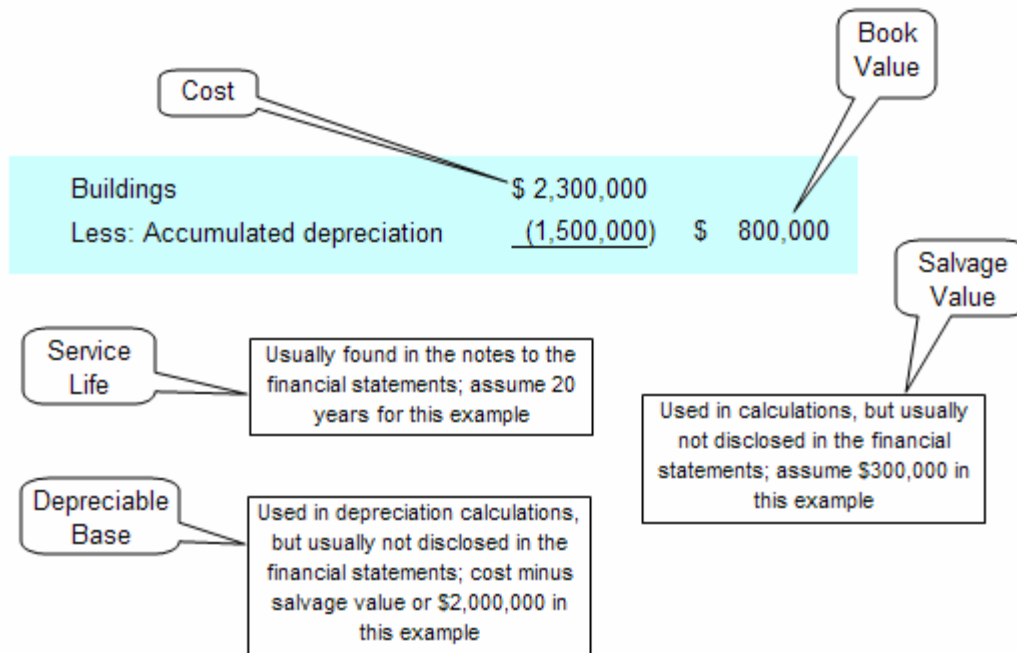
are alternative depreciation methods from which to choose. In any given scenario, ample professional judgment must be applied in selecting the specific depreciation method to apply. The above discussion is but one simple illustration; life affords an almost infinite number of scenarios, and accountants must weigh many variables as they zero-in on their preferred choice under a given set of facts and circumstances (author's note: Not meaning to detract from the importance of this discussion, it must be noted that the choice of depreciation method can become highly subjective. Some research suggests that such choices are unavoidably "arbitrary," despite the best of intentions). Having set the stage for consideration of multiple depreciation methods, it is now time to dig into the mechanics of each approach.

MANY METHODS: A variety of approaches can be used to calculate depreciation. And, those methods are usually covered in intermediate accounting courses. Fortunately, most companies elect to stay with one of the fairly basic techniques -- as they all produce the same "final outcome" over the life of an asset, and that outcome is allocating the depreciable cost of the asset to the asset's service life. Therefore, although you will now only be exposed to four methods, those methods are the ones you are most apt to encounter.

SOME IMPORTANT TERMINOLOGY: In any discipline, precision is enhanced by adopting terminology that has very specific meaning. Accounting for PP&E is no exception. An exact understanding of the following terms is paramount:

- *Cost:* The dollar amount assigned to a particular asset; usually the ordinary and necessary amount expended to get an asset in place and in condition for its intended use.
- *Service life:* The useful life of an asset to an enterprise, usually relating to the anticipated period of productive use of the item.
- *Salvage value:* Also called residual value; is the amount expected to be realized at the end of an asset's service life. For example, you may anticipate using a vehicle for three years and then selling it. The anticipated sales amount at the end of the service life is the salvage or **residual value**.
- *Depreciable base:* The *cost minus the salvage value*. **Depreciable base** is the amount of cost that will be allocated to the service life.
- *Book value:* Also called net book value; refers to the balance sheet amount at a point in time that reveals the *cost minus the amount of accumulated depreciation* (book value has other meanings when used in other contexts -- so this definition is limited to its use in the context of PP&E).

Below is a diagram relating these terms to the financial statement presentation for a building:



In the above illustration -- assuming straight-line depreciation -- can you determine the asset's age?

It is 15 years old; the \$2,000,000 depreciable base (\$2,300,000 - \$300,000) is being evenly spread over 20 years. This produces annual depreciation of \$100,000. As a result, the accumulated depreciation is \$1,500,000 (15 X \$100,000).

THE STRAIGHT-LINE METHOD

THE STRAIGHT-LINE METHOD: Under this simple and popular approach, the annual depreciation is calculated by dividing the depreciable base by the service life. An asset that has a \$100,000 cost, \$10,000 salvage value, and a four-year life would produce the following amounts:

| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense Calculation |
|--------|----------------------|---|----------------------------|
| Year 1 | \$22,500 | \$22,500 | (\$100,000 - \$10,000)/4 |
| Year 2 | \$22,500 | \$45,000 | (\$100,000 - \$10,000)/4 |
| Year 3 | \$22,500 | \$67,500 | (\$100,000 - \$10,000)/4 |
| Year 4 | \$22,500 | \$90,000 | (\$100,000 - \$10,000)/4 |

For each of the above years, the journal entry to record depreciation is as follows:

| | | | |
|----------|---------------------------------|--------|--------|
| 12-31-XX | <u>Depreciation Expense</u> | 22,500 | |
| | <u>Accumulated Depreciation</u> | | 22,500 |

To record annual depreciation expense

The applicable depreciation expense would be included in each year's income statement (except in a manufacturing environment where some depreciation may be assigned to the manufactured inventory, as will be covered in the managerial accounting chapters later in this book). The appropriate balance sheet presentation would appear as follows (end of year 3 in this case):

| | | |
|---|-----------------|-----------|
| Equipment | \$100,000 | |
| Less: Accumulated depreciation on equipment | <u>(67,500)</u> | \$ 32,500 |

FRACTIONAL PERIOD DEPRECIATION: Assets may be acquired at other than the beginning of an accounting period, and depreciation must be calculated for a partial period. With the straight-line method the amount is simply a fraction of the annual amount. For example, an asset acquired on the first day of April would be used for only nine months during the first calendar year. Therefore, year one depreciation would be 9/12 of the annual amount. Following is the depreciation table for the above asset, this time assuming an April 1 acquisition date:

| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense Calculation |
|--------|----------------------|--|--|
| Year 1 | \$16,875 | \$16,875 | $((\$100,000 - \$10,000)/4) \times 9/12$ |
| Year 2 | \$22,500 | \$39,375 | $(\$100,000 - \$10,000)/4$ |
| Year 3 | \$22,500 | \$61,875 | $(\$100,000 - \$10,000)/4$ |
| Year 4 | \$22,500 | \$84,375 | $(\$100,000 - \$10,000)/4$ |
| Year 5 | \$5,625 | Not applicable -- assumed disposed on March 31 | $((\$100,000 - \$10,000)/4) \times 3/12$ |

SPREADSHEET SOFTWARE: Microsoft Excel (and competing products) include built-in depreciation functions that may be entered by setting formulas (which can also be easily accessed from the Insert Function commands). Below is a screen shot showing the straight-line method function. On execution, this routine returns the \$22,500 annual depreciation value to the C5 cell of the worksheet.

The screenshot shows Microsoft Excel with the following data in a spreadsheet:

| | A | B | C | D | E | F |
|----|---|--------|----------------------|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | Year 1 | =SLN(100000,10000,4) | | | |
| 6 | | Year 2 | \$22,500 | | | |
| 7 | | Year 3 | \$22,500 | | | |
| 8 | | Year 4 | \$22,500 | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |

The 'Function Arguments' dialog box for the SLN function is open, showing the following inputs:

- Cost: 100000
- Salvage: 10000
- Life: 4

The dialog box also includes the following text:

Returns the straight-line depreciation of an asset for one period.

Life is the number of periods over which the asset is depreciated (sometimes called the useful life of the asset).

Formula result = \$22,500

[Help on this function](#)

THE UNITS-OF-OUTPUT METHOD

THE UNITS-OF-OUTPUT METHOD: This technique involves calculations that are quite similar to the straight-line method, but it allocates the depreciable base over the units of output (e.g., machine hours) rather than years of use. It is logical to use this approach in those situations where the life is best measured by identifiable units of machine "consumption." For example, perhaps the engine of a corporate jet has an estimated 50,000 hour life. Or, a printing machine may produce an expected 4,000,000 copies. In cases like these, the accountant may opt for the units-of-output method. To illustrate, assume Dat Nguyen Painting Corporation purchased an air filtration system that has a life of 8,000 hours. The filter costs \$100,000 and has a \$10,000 salvage value. Nguyen anticipates that the filter will be used 1,000 hours during the first year, 3,000 hours during the second, 2,000 during the third, and 2,000 during the fourth. Accordingly, the anticipated depreciation schedule would appear as follows (if actual usage varies, the schedule would be adjusted for the changing estimates using principles that are discussed later in this chapter):

| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense Calculation |
|--------|----------------------|---|--|
| Year 1 | \$11,250 | \$11,250 | 1,000 hours/8,000 hours X (\$100,000 - \$10,000) |
| Year 2 | \$33,750 | \$45,000 | 3,000 hours/8,000 hours X (\$100,000 - \$10,000) |
| Year 3 | \$22,500 | \$67,500 | 2,000 hours/8,000 hours X (\$100,000 - \$10,000) |
| Year 4 | \$22,500 | \$90,000 | 2,000 hours/8,000 hours X (\$100,000 - \$10,000) |

The form of journal entry and balance sheet account presentation are just as were illustrated for the straight-line method, but with the revised amounts from the above table.

THE DOUBLE-DECLINING BALANCE METHOD

THE DOUBLE-DECLINING BALANCE METHOD (DDB): As one of several "accelerated depreciation" methods, DDB results in relatively large amounts of depreciation in early years of asset life and smaller amounts in later years. This method can be justified if the quality of service produced by an asset declines over time, or if repair and maintenance costs will rise over time to offset the declining depreciation amount. With this method, a fixed percentage of the straight-line rate (i.e., 200% or "double") is multiplied times the remaining book value of an asset (as of the beginning of a particular year) to determine depreciation for a particular year. As time passes, book value and annual depreciation decrease.

To illustrate, let's again utilize our example of the \$100,000 asset, with a four-year life, and \$10,000 salvage value. Depreciation for each of the four years would appear as follows:

| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense Calculation |
|--------|----------------------|---|------------------------------|
| Year 1 | \$50,000 | \$50,000 | \$100,000 X 50% |
| Year 2 | \$25,000 | \$75,000 | (\$100,000 - \$50,000) X 50% |
| Year 3 | \$12,500 | \$87,500 | (\$100,000 - \$75,000) X 50% |
| Year 4 | \$2,500 | \$90,000 | see discussion below |

The amounts in the above table deserve additional commentary. Year one is hopefully clear -- expense equals the cost times twice the straight-line rate (4 year life = 25% straight-line rate; 25% X 2 = 50% rate). Year two is the 50% rate applied to the remaining balance of the asset as of the beginning of the year; the remaining balance would be the cost minus the accumulated depreciation (\$100,000 - \$50,000). Year three is just like year two -- 50% times the beginning book value (\$100,000 - \$75,000). Note that salvage value was simply ignored in the preliminary years' calculations. For year four, however, the calculated amount (((\$100,000 - \$87,500) X 50% = \$6,250)) would cause the lifetime depreciation to exceed the \$90,000 depreciable base. Thus, in year four, only \$2,500 is taken as expense even though the calculated amount is higher. This gives rise to an important general rule for DDB -- *salvage value is initially ignored, but once accumulated depreciation reaches the amount of the depreciable base, then depreciation ceases*. In our example, only \$2,500 was needed in year four to bring the aggregate depreciation up to the \$90,000 level.

It is possible that an asset will have no salvage value. If you are very perceptive, you will note that the mathematics of DDB will never fully depreciate such assets (since you are always taking only a percentage of the remaining balance, you can never bring the remaining balance to zero). In these cases, accountants typically change to the straight-line method near the end of an asset's useful life to "finish off" the accounting for an asset which is to be taken to a final zero net book value. The mechanics of this shift in method are sometimes covered in intermediate accounting.

SPREADSHEET SOFTWARE: DDB is also calculable from built-in depreciation functions. Below is the routine that returns the \$12,500 annual depreciation value for Year 3.

The screenshot shows a Microsoft Excel spreadsheet titled "Microsoft Excel - ddbfullyear.xls". The spreadsheet displays a depreciation schedule for an asset with a cost of 100,000, a salvage value of 10,000, and a useful life of 4 years. The depreciation expense for each year is calculated using the Double-Declining Balance (DDB) method. The values are: Year 1: \$50,000; Year 2: \$25,000; Year 3: \$12,500 (calculated using the formula =DDB(100000,10000,4,3)); Year 4: \$2,500. The formula bar shows the active cell containing the formula =DDB(100000,10000,4,3). The Function Arguments dialog box is open, showing the following values: Cost: 100000, Salvage: 10000, Life: 4, Period: 3, and Factor: 1. The dialog box also provides a description of the DDB function and the formula result, which is \$12,500.

| | A | B | C | D | E | F |
|----|---|--------|------------------------|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | Depreciation Expense | | | |
| 4 | | | | | | |
| 5 | | Year 1 | \$50,000 | | | |
| 6 | | Year 2 | \$25,000 | | | |
| 7 | | Year 3 | =DDB(100000,10000,4,3) | | | |
| 8 | | Year 4 | \$2,500 | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |

FRACTIONAL PERIOD DEPRECIATION: Under DDB, fractional years involve a very simple adaptation to the approach presented above. The first partial year will be a fraction of the annual amount, and all subsequent years will be the normal calculation (twice the straight-line rate times the beginning of year book value). If our example asset were purchased on April 1, 20X1, the following calculations result:

| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense Calculation |
|--------|----------------------|--|---|
| Year 1 | \$37,500 | \$37,500 | $\$100,000 \times 50\% \times 9/12$ |
| Year 2 | \$31,250 | \$68,750 | $(\$100,000 - \$37,500) \times 50\%$ |
| Year 3 | \$15,625 | \$84,375 | $(\$100,000 - \$68,750) \times 50\%$ |
| Year 4 | \$5,625 | \$90,000 | $(\\$100,000 - \\$84,375) \times 50\%$ Limited to depreciable base |
| Year 5 | \$0 | Not applicable -- assumed disposed on March 31 | \$0 |

ALTERNATIVES TO DDB: 150% and 125% declining balance methods are quite similar to DDB, but the rate is 150% or 125% of the straight-line rate (instead of 200% as with DDB).

THE SUM-OF-THE-YEARS'-DIGITS METHOD

THE SUM-OF-THE-YEARS'-DIGITS METHOD: This approach was used in the graphic example at the beginning of this chapter, but without any calculation details. The calculations will undoubtedly be seen as a bit peculiar; I have no idea who first originated this approach or why.

Under the technique, depreciation for any given year is determined by multiplying the depreciable base by a fraction; the numerator is a digit relating to the year of use (e.g., the digit for an asset with a ten-year life would be 10 for the first year of use, 9 for the second, and so on), and the denominator is the sum-of-the-years' digits (e.g., $10 + 9 + 8 + \dots + 2 + 1 = 55$). In our continuing illustration, the four-year lived asset would be depreciated as follows (bear in mind that $4 + 3 + 2 + 1 = 10$):

| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense Calculation |
|--------|----------------------|---|--------------------------------------|
| Year 1 | \$36,000 | \$36,000 | $(\$100,000 - \$10,000) \times 4/10$ |
| Year 2 | \$27,000 | \$63,000 | $(\$100,000 - \$10,000) \times 3/10$ |
| Year 3 | \$18,000 | \$81,000 | $(\$100,000 - \$10,000) \times 2/10$ |
| Year 4 | \$9,000 | \$90,000 | $(\$100,000 - \$10,000) \times 1/10$ |

SPREADSHEET SOFTWARE: Again, software includes a built-in function for sum-of-the-years'-digits (SYD) method. Below is the function that returns the \$18,000 annual depreciation value for Year 3.

Microsoft Excel - sydfullyear.xls

File Edit View Insert Format Tools Data Window Help Adobe PDF

Arial 10 B I U \$ % , +.0 +.00

SYD X ✓ $\text{=SYD}(100000,10000,4,3)$

| | A | B | C | D | E | F |
|----|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |

Depreciation Expense

| | |
|--------|---------------------------------|
| Year 1 | \$36,000 |
| Year 2 | \$27,000 |
| Year 3 | $\text{=SYD}(100000,10000,4,3)$ |
| Year 4 | \$9,000 |

Function Arguments

SYD

Cost 100000

Salvage 10000

Life 4

Per 3

Returns the sum-of-years' digits depreciation of an asset for a specified period.

Per is the period and must use the same units as Life.

Formula result = \$18,000

[Help on this function](#)

FRACTIONAL PERIOD DEPRECIATION: With the sum-of-the-years'-digits method, fractional years require fairly intensive layering for every year (e.g., if a ten-year asset is acquired on July 1, 20X1, depreciation for 20X1 is the depreciable base times $10/55$ times $6/12$ (relating to six months of use); depreciation for 20X2 is the depreciable base times $10/55$ times $6/12$ (reflecting the last six months of the first layer), plus the depreciable base times $9/55$ times $6/12$ (reflecting the first six months of the next layer)). Returning to our \$100,000, four-year lived asset; if the asset was acquired on April 1, Year 1, the resulting depreciation amounts are calculated as:

| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense Calculation |
|--------|----------------------|--|--|
| Year 1 | \$27,000 | \$27,000 | $(\$100,000 - \$10,000) \times 4/10 \times 9/12$ |
| Year 2 | \$29,250 | \$56,250 | $(\$100,000 - \$10,000) \times 4/10 \times 3/12$ + $(\$100,000 - \$10,000) \times 3/10 \times 9/12$ |
| Year 3 | \$20,250 | \$76,500 | $(\$100,000 - \$10,000) \times 3/10 \times 3/12$ + $(\$100,000 - \$10,000) \times 2/10 \times 9/12$ |
| Year 4 | \$11,250 | \$87,750 | $(\$100,000 - \$10,000) \times 2/10 \times 3/12$ + $(\$100,000 - \$10,000) \times 1/10 \times 9/12$ |
| Year 5 | \$2,250 | Not applicable -- assumed disposed on March 31 | $(\$100,000 - \$10,000) \times 1/10 \times 3/12$ |

Admittedly, the above table is a bit "busy," but if you take time to trace each of the amounts, it will be a good key to your understanding.

Before moving away from the sum-of-the-years'-digits, you may find it tedious to be adding numbers like $10 + 9 + 8 + \dots + 1 = 55$. But, mathematicians long ago figured out a short cut for this calculation: $(n(n + 1))/2$, where n is the number of items in the sequence. Thus, for an asset with a ten year life: $(10(10 + 1))/2 = 10(11)/2 = 110/2 = 55$. Try this on your own for the four year life, and make sure your result is "10." Try again for a 15 year life asset, and make sure you get "120." Do you see that the sum-of-the-years'-digit's fraction for the 4th year of use would be $12/120$? Remember, you count backwards -- Year one is $15/120$, Year two is $14/120$, Year three is $13/120$, and Year four would be $12/120$.

CHANGES IN ESTIMATES: Obviously, the initial assumption about useful life and residual value is only an estimate. Time and new information may suggest that the initial assumptions need to be revised, especially if the initial estimates prove to be materially off course. It is well accepted that **changes in estimates** do not require re-doing the prior period financial statements; after all, an estimate is just that, and the financial statements of prior periods were presumably based on the best information available at the time. Therefore, rather than correcting prior periods' financial statements, such revisions are made prospectively (over the future) so that the remaining depreciable base is spread over the remaining life.

To illustrate, let's return to the straight-line method. Assume that two years have passed for our \$100,000 asset that was initially believed to have a four-year life and \$10,000 salvage value; as of the beginning of Year 3, new information suggests that the asset will have a total life of seven years (three more than originally thought), and have a \$5,000 salvage value. As a result, the revised remaining depreciable base (as of January 1, 20X3) will be spread over the remaining five years, as follows:



| | Depreciation Expense | Accumulated Depreciation at End of Year | Annual Expense (|
|--------|----------------------|---|---------------------------------------|
| Year 1 | \$22,500 | \$22,500 | (\$100,000 - \$10,000) / 5 = \$19,000 |
| Year 2 | \$22,500 | \$45,000 | (\$100,000 - \$10,000) / 5 = \$19,000 |
| Year 3 | \$10,000 | \$55,000 | (\$100,000 - \$45,000) / 5 = \$11,000 |
| Year 4 | \$10,000 | \$65,000 | (\$100,000 - \$45,000) / 5 = \$11,000 |
| Year 5 | \$10,000 | \$75,000 | (\$100,000 - \$45,000) / 5 = \$11,000 |
| Year 6 | \$10,000 | \$85,000 | (\$100,000 - \$45,000) / 5 = \$11,000 |
| Year 7 | \$10,000 | \$95,000 | (\$100,000 - \$45,000) / 5 = \$11,000 |

The depreciation amounts for Years 3 through 7 are based on spreading the "revised" depreciable base over the last five years of remaining life. The "revised" depreciable base is \$50,000, and is calculated as the original cost (\$100,000) minus the depreciation already taken (\$45,000), and minus the revised salvage value (\$5,000).

TAX LAWS

TAX LAWS: Although this book is about financial and managerial accounting, it is certainly necessary to call your attention to the unique features of depreciation under the tax code. First, it is important to note that tax methods and financial accounting methods are not always the same; that is certainly true when it comes to the subject of depreciation. For example, when the economy "slows down" governments will often try to stimulate economic investment activity by providing special incentives that are realized through rapid depreciation for tax purposes (even immediate write-off in some cases). Now, you may wonder how this is supposed to help the economy. Well, suppose you were thinking of buying a new truck for use in your trade or business. If the government said you could reduce your taxable income by the amount of the purchase price immediately (rather than depreciating the asset over a much longer period of time), you see how this might prompt you to buy and bring about an incremental improvement in the economy.

The history of the tax laws is marked by many changes to the rates and methods that are permitted in any given year. As a result, it is difficult to generalize about the operation of the tax code as it relates to depreciation. But, in general, the USA tax rules provide for a depreciation technique known as the **Modified Accelerated Cost Recovery System** (MACRS -- called "makers"). MACRS provides a general depreciation system and an alternative system -- and within those systems are generally provisions relating to the 200% declining balance, 150% declining balance, and straight-line techniques.

Further, the tax system will generally stipulate the useful life of an asset rather than leaving it to the imagination of the taxpayer. For example, a race horse over two-years old when placed in service is assumed to have a three-year life; obviously very few stones are left unturned. The tax code tends to be very complete in identifying assets and their lives. As a general rule, the tax code lives tend to be "favorable" to taxpayers, and generally result in depreciation occurring at a faster rate than under generally accepted accounting principles.

It is noteworthy that the government has reduced the depreciation calculations down to percentage values that are reproduced in numerous reference tables. This reduces the

possibility of error and makes it easy for someone who never studied depreciation methods to still come up with the right amount of depreciation in any given year.

You may be bothered to consider that a company would use one accounting method for financial reporting and another for tax. But, this is often the case, and there is nothing devious involved. Accounting rules are about measuring economic activity of a business and require a proper scheme of matching revenues and cost to achieve this objective. Meanwhile, the tax code must be followed, and it often changes to meet the revenue or social objectives of the government. As a result, temporary (and sometimes not so temporary) differences will arise between accounting and tax measurements. Records of these differences must be maintained, making the accounting task all the more challenging for a complex business organization.



chapter 11

Advanced PP&E Issues/Natural Resources/Intangibles

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "advanced PP&E issues, natural resources, and intangibles" chapter are to learn about:

- [The accounting for costs incurred subsequent to asset acquisition.](#)
- [Appropriate methods to measure and record the disposal of property, plant, and equipment.](#)
- [Accounting for asset exchanges.](#)
- [Rules for recording asset impairments.](#)
- [Natural resource accounting and depletion concepts.](#)
- [Intangible asset accounting and amortization concepts.](#)

DISCUSSION

PP&E COSTS SUBSEQUENT TO ASSET ACQUISITION

PP&E COSTS INCURRED AFTER ACQUISITION: Think about an automobile. The vehicle must be fueled, insured, and maintained. Maintenance will include a variety of items like washing, oil and lube, tires, wiper blades, brake jobs, tune-ups, engine overhaul, body damage repair, and on and on. Cars are not unique; most items of PP&E will require substantial ongoing costs to keep them in good order. The accounting rules for such costs are to treat them as "capital expenditures" (i.e., put them on the balance sheet as an asset of some type) if future economic benefits result from the expenditure. Future economic benefits occur if the service life of an asset is prolonged, the quantity of services expected from an asset are increased, or the quality of services expected from an asset are improved. Expenditures not meeting at least one of these criteria should be accounted for as a "revenue expenditure" and be expensed as incurred. Judgment is again required in applying these rules.

A literal reading of those rules might lead you to believe that routine maintenance would be capitalized. After all, putting fuel in a car does "extend its service life;" without fuel its service life would end. But that interpretation would be a misconstruing of the intent of the rule. Specifically, it is intended that ongoing costs necessary to maintain the normal operating condition are expensed as incurred. These costs are simply referred to as normal "repair and maintenance" expenditures.

RESTORATION AND IMPROVEMENT: A delivery truck may have a perfectly good frame, but the engine has many miles of use and is in need of **replacement**. In essence, the replacing of the engine represents a "restoration" of some of the original condition (akin to "undepreciating" a portion of the truck). Restoration and improvement type costs are considered to meet the conditions for capitalization. The journal entry to reflect this restoration is:

| | | | |
|----------|--|--------|--------|
| 05-15-X5 | Accumulated Depreciation | 16,000 | |
| | Cash | | 16,000 |
| | <i>Paid \$16,000 to replace the engine on delivery truck</i> | | |

Notice that the above debit is to Accumulated Depreciation. The effect is to increase the net book value of the asset by reducing its accumulated depreciation on the balance sheet. This approach is perfectly fine for "restoration" expenditures. However, if you are "improving" the asset beyond its original condition (sometimes termed a "betterment"), such costs would be capitalized by debiting the asset account, as follows:

| | | | |
|----------|---|--------|--------|
| 05-15-X5 | Equipment | 16,000 | |
| | Cash | | 16,000 |
| | <i>Paid \$16,000 to add refrigeration equipment not previously installed on the truck</i> | | |

DISPOSAL OF PP&E

PP&E DISPOSAL Assets may be abandoned, sold, or exchanged. In any case, it is first necessary to fully update all depreciation calculations through the date of disposal. Then, and only then, would the asset disposal be recorded.

If the asset is simply being scrapped (abandoned), the journal entry entails only the elimination of the cost of the asset from the books, removing the related accumulated depreciation, and recording a loss to balance the journal entry. This loss reflects the net book value that was not previously depreciated:

| | | | |
|----------|--|--------|---------|
| 06-30-X3 | Accumulated Depreciation | 75,000 | |
| | Loss | 25,000 | |
| | Equipment | | 100,000 |
| | <i>Abandoned equipment costing \$100,000. The equipment was 75% depreciated on the date of disposal.</i> | | |

On the other hand, an asset may be disposed of by sale, in which case the journal entry would need to be modified to include the proceeds of the sale. Assume the above asset were sold for \$10,000. Logically, the loss would be reduced by this amount, and the entry would be as follows:

| | | | |
|----------|--|--------|---------|
| 06-30-X3 | Accumulated Depreciation | 75,000 | |
| | Loss | 15,000 | |
| | Cash | 10,000 | |
| | Equipment | | 100,000 |
| | <i>Sold equipment costing \$100,000 for \$10,000. The equipment was 75% depreciated on the date of sale.</i> | | |



While the journal entry may be sufficient to demonstrate the loss calculation, you might also consider that an asset with a \$25,000 net book value (\$100,000

cost minus \$75,000 accumulated depreciation) is being sold for \$10,000 -- which gives rise to the loss of \$15,000.

Conversely, what if this asset were sold for \$30,000? Here is the entry for that scenario:

| | | | |
|---|--|--------|---------|
| 06-30-X3 | Accumulated Depreciation | 75,000 | |
| | Cash | 30,000 | |
| | Gain | | 5,000 |
| | Equipment | | 100,000 |
| Sold equipment costing \$100,000 for \$30,000. The equipment was 75% depreciated on the date of sale. | | | |

ACCOUNTING FOR ASSET EXCHANGES

EXCHANGES: You may have bought a new car and part of what you gave to obtain the new car was a "trade in" of a different car. This would be a classic "exchange" transaction. In business, equipment is often exchanged (e.g., an old copy machine for a new one). Sometimes land is exchanged. Exchanges are often motivated by tax rules because neither company may be required to recognize a taxable event on the exchange; quite different than the tax outcome of an outright sale. Whatever the motivation behind the transaction, the accountant is again pressed to measure and report the event.

COMMERCIAL SUBSTANCE: The accounting rules for exchanges once hinged on whether swapped assets were *similar or dissimilar*. However, in a move to establish international accounting harmony, the FASB has adopted a global view that all exchanges that have "commercial substance" (future cash flows of the entity are expected to change because of the exchange) should be accounted for at fair value.

FAIR VALUE APPROACH: This approach will ordinarily result in recognition of a gain or loss because the fair value will typically differ from the recorded book value for the swapped assets. There is deemed to be a culmination of the earnings process when assets are swapped -- one productive component is liquidated and another is put in its place. There are many possible scenarios:

Example A: Loss Implied

Company A gives an old truck (\$1,000,000 cost, \$750,000 accumulated depreciation) for a boat. The fair value of the old truck is \$150,000 (which is also deemed to be the fair value of the boat). The boat should be recorded at fair value; since that amount is less than the net book value of the old truck, a loss is recorded (for the difference):

| | | | |
|----------|--|---------|--|
| 06-30-X3 | Accumulated Depreciation (old) | 750,000 | |
| | Loss | 100,000 | |



| | | |
|---|---------|-----------|
| <u>Equipment</u> (new) | 150,000 | |
| <u>Equipment</u> (old) | | 1,000,000 |
| <i>To remove all accounts related to the old truck, set up the new boat at its fair value, and record the balancing loss.</i> | | |

Example B: Gain Implied

Company A gives an old truck (\$1,000,000 cost, \$750,000 accumulated depreciation) for a boat. The fair value of the old truck is \$350,000 (which is also deemed to be the fair value of the boat). The boat should be recorded at fair value; since that amount is more than the net book value of the old truck, a gain is recorded (for the difference):

| | | | |
|---|---------------------------------------|---------|-----------|
| 06-30-X3 | <u>Accumulated Depreciation</u> (old) | 750,000 | |
| | <u>Equipment</u> (new) | 350,000 | |
| | <u>Gain</u> | | 100,000 |
| | <u>Equipment</u> (old) | | 1,000,000 |
| <i>To remove all accounts related to the old truck, set up the new boat at its fair value, and record the balancing gain.</i> | | | |

BOOT: Exchange transactions are oftentimes accompanied by giving or receiving "boot." Boot is the term used to describe additional monetary consideration that may accompany an exchange transaction. Its presence only slightly modifies the above accounting by adding one more account (typically Cash) to the journal entry. For instance, assume Example A is amended to add the following facts: Company A also gave \$50,000 cash along with the old truck, because the old truck was only worth \$100,000:

| | | | |
|--|---------------------------------------|---------|-----------|
| 06-30-X3 | <u>Accumulated Depreciation</u> (old) | 750,000 | |
| | <u>Loss</u> | 150,000 | |
| | <u>Equipment</u> (new) | 150,000 | |
| | <u>Cash</u> | | 50,000 |
| | <u>Equipment</u> (old) | | 1,000,000 |
| <i>To remove all accounts related to the old truck and cash, set up the new boat at its fair value, and record the balancing loss.</i> | | | |

Notice that this entry has an added credit to Cash reflecting the additional consideration. The offsetting loss has increased to \$150,000. The loss is the balancing amount, and reflects that \$300,000 of consideration (cash (\$50,000) and an old item of equipment (\$1,000,000 - \$750,000 = \$250,000)) was swapped for an item worth only \$150,000. Had boot been received, the cash would have instead been debited (and a smaller loss, or possibly a gain, would be recorded to balance the entry).



EXCHANGES LACKING COMMERCIAL SUBSTANCE: Some exchanges may not have commercial substance. For example, a car dealer may have an oversupply of red cars and not enough green ones. To rebalance inventory, they swap red for green with another dealer; no significant change in

cash flows is expected because of this trade. In this case, the exchange lacks "commercial substance," and no gain is to be recorded. The green cars are simply recorded at the cost of the red cars (a loss might be recorded if impairment is suggested). If an exchange lacking commercial substance also entails the receipt of boot, a proportionate amount of gain in relation to the cash portion of the deal might be recognized; this situation is usually covered in more advanced courses.

ASSET IMPAIRMENT

ASSET IMPAIRMENTS: When the carrying amount of a long-lived asset (or group of assets as appropriate) is not recoverable from its expected future cash flows, it is deemed to be "**impaired.**" That is to say, the owner of the asset *no longer expects to be able to generate returns of cash from the asset sufficient to recapture its recorded net book value.* When this scenario occurs, a loss must be recognized for the amount needed to reduce the asset to its fair value (i.e., debit loss and credit the asset). The downward revised carrying value will then be depreciated over its remaining estimated life. Like other changes in estimates, this is a "prospective change," and no prior periods are restated.

Obviously, the measurements of impairment involve subjective components and require quite a bit of judgment. When the Financial Accounting Standards Board came up with these rules, they gave some guidance. Factors such as the following should be taken into account in considering whether an impairment exists: there has been a significant decrease in market value of an asset, the physical condition of the asset has declined unexpectedly, the asset is no longer being used as intended, legal or regulatory issues have impeded the asset, cost overruns are associated with the asset's acquisition, the overall business seems threatened by unsuccessful performance, or the asset is now expected to be disposed of ahead of schedule.

TAKING A "BIG BATH": This terminology is sometimes used to characterize significant one-time impairment losses. You may see this occur when a business has gone through a significant down-period and is struggling to regain its footing. Coincident with the restructuring, numerous assets may be deemed impaired and their carrying value reduced. Management has some degree of incentive to engage in this "bath." Why? Given that the write-down will produce a loss, isn't this something that management might wish to avoid? Well, the logic goes like this -- things are already bad, so where is the harm? And, more to the point, future periods' income will be buoyed by this action because the write-off will leave less assets that will need to be depreciated in the future. The reduction in future expenses increases the chances of painting a return to profitability. Memories are short, and management may hope the bath will be forgotten once profitability is restored.

NATURAL RESOURCES

NATURAL RESOURCES: Oil and gas reserves, mineral deposits, thermal energy sources, and standing timber are just a few examples of **natural resource** assets that a firm may own. There are many industry-specific accounting measurements attributable to such assets. As a general rule, natural resources are initially entered in the accounting records at their direct cost plus logically related items like legal fees, surveying costs, and exploration and development costs. Once the cost basis is properly established, it must be allocated over the periods benefited

| | |
|--------------------------------|--------------------|
| Initial cost | \$ 9,000,000 |
| Development cost | 3,000,000 |
| Less: Estimated residual value | <u>- 2,000,000</u> |
| Depletable base | \$ 10,000,000 |
| Divided by estimated units | <u>= 5,000,000</u> |
| Depletion per ton | \$2 |



through a process known as "depletion." Think of it this way: depletion is to a property, plant, and

natural resource as depreciation is to equipment.

DEPLETION CALCULATIONS: The cost of a natural resource (less any expected residual value) must be divided by the estimated units in the resource deposit; the resulting amount is depletion per unit. If all of the resources extracted during a period are sold, then depletion expense equals depletion per unit times the number of units extracted and sold. If a portion of the extracted resources are unsold resources, then the cost of those units (i.e., number of units times depletion per unit) should be carried on the balance sheet as inventory.

To illustrate, assume that a mine site is purchased for \$9,000,000, and another \$3,000,000 is spent on developing the site for production. Assume the site is estimated to contain 5,000,000 tons of the targeted ore. At completion of the operation, the site will be water flooded and sold as a recreational lake site for an estimated \$2,000,000. The depletion rate is \$2 per ton, with the calculations shown at right:

If 1,000,000 tons of ore are extracted in a particular year, the assigned cost would obviously be \$2,000,000. But where does that cost go? If 750,000 tons are sold and the other 250,000 tons are simply held in inventory of extracted material, then \$1,500,000 would go to Cost of Goods Sold and the other \$500,000 would go to the balance sheet as inventory. A representative entry would appear as follows:

| | | | |
|--|--|-----------|-----------|
| 12-31-X8 | <u>Inventory</u> | 500,000 | |
| | <u>Cost of Goods Sold</u> | 1,500,000 | |
| | <u>Natural Resource (or accumulated depletion)</u> | | 2,000,000 |
| <i>To record annual depletion charge reflecting assignment of depletion cost to inventory (250,000 X \$2) and cost of goods sold (750,000 X \$2)</i> | | | |

EQUIPMENT USED TO EXTRACT NATURAL RESOURCES: Property, plant, and equipment used to extract natural resources must be depreciated over its useful life. Sometimes the useful life of such PP&E is tied directly to the natural resource life, even though its actual physical life is much longer. For example, if a train track is built into a mine, the track is of no use once the mine closes (even though it could theoretically still carry a train for a much longer period). As a result, the track would be depreciated over the life of the mine. Conversely, the train that runs on the track can be relocated and used elsewhere; as such it would likely be depreciated over the life of the train rather than the life of the mine.

INTANGIBLES

INTANGIBLE ASSETS: The defining characteristic of an intangible is the lack of physical existence. Nevertheless, such assets contribute to the earnings capability of a company. Examples include patents, copyrights, trademarks, brands, franchises, and similar items. A company develops many such items via ongoing business processes, and those internally developed intangibles may not appear on the corporate accounts. For example, GAAP prohibits recording research and development expenditures as assets; nevertheless, significant intangible rights and benefits may emanate from such activities. Those intangible benefits represent an invisible asset of the company.



On the other hand, intangibles may be purchased from another party. For example, one company may need to utilize technology embedded in a patent right belonging to someone else. When intangibles are purchased, the cost is recorded as an intangible asset. When a purchased intangible has an *identifiable* economic life, its cost is "amortized" over that useful life (amortization is the term to describe the allocation of the cost of an intangible -- just as depreciation describes the allocation of the cost of PP&E). Some intangibles have an *indefinite* life and those items are not amortized; instead, they are periodically evaluated for impairment. If they are never found to be impaired, they will permanently remain on the balance sheet. The unamortized/unimpaired cost of intangible assets is positioned in a separate balance sheet section immediately following Property, Plant, and Equipment.

AN AMORTIZATION EXAMPLE: Assume that Mercury Pharmaceutical purchased a patent for \$50,000, estimating its useful life to be five years. The appropriate entries are:

| | | | |
|----------|---|--------|--------|
| 01-1-X1 | <u>Patent</u> | 50,000 | |
| | <u>Cash</u> | | 50,000 |
| | <i>Paid \$50,000 to purchase a patent</i> | | |
| 12-31-XX | <u>Amortization Expense</u> | 10,000 | |
| | <u>Patent</u> | | 10,000 |
| | <i>To record annual amortization expense (\$50,000/5 years)</i> | | |

Unlike PP&E, notice that the above annual amortization entry credits the asset account directly; there is no separate accumulated amortization account for intangible assets.

AN IMPAIRMENT EXAMPLE: Assume that Music Download Service, Inc., purchased the internet domain name "notesthatfloats.com" for \$50,000, estimating it to have an indefinite life. The Domain Name would be recorded at its initial cost, and not be subjected to annual amortization. However, should a periodic review (conducted at least once each year) reveal that the fair value of the asset is no longer at least \$50,000, it will be necessary to record a loss and reduce the asset.

| | | | |
|----------|---|--------|--------|
| 01-1-X1 | <u>Domain Name</u> | 50,000 | |
| | <u>Cash</u> | | 50,000 |
| | <i>Paid \$50,000 to purchase a domain name</i> | | |
| 09-30-X3 | <u>Loss</u> | 25,000 | |
| | <u>Domain Name</u> | | 25,000 |
| | <i>Internet "bust" caused the fair value of purchased domain name to be reduced by half</i> | | |

SOME SPECIFIC INTANGIBLES:

Patents give their owners exclusive rights to use or manufacture a particular product. The cost of a patent should be amortized over its useful life (not to exceed its legal life of 20 years).

Importantly, the cost of a patent does not include the research and development costs incurred in seeking the knowledge necessary for the patent. The amount included in the Patent account includes only the cost of a purchased patent and/or incidental costs related to the registration of a patent (like legal fees).

Copyrights provide their owners with the exclusive right to produce or sell an artistic or published work. A copyright has a legal life equal to the life of the creator plus 70 years; the economic life is usually shorter. The economic life is the period of time over which the cost of a copyright should be amortized.

Franchises give their owners the right to manufacture or sell certain products or perform certain services on an exclusive or semi-exclusive basis. The cost of a franchise is reported as an intangible asset, and should be amortized over the estimated useful life.

Trademarks/brands/internet domains are another important class of intangible assets. Although these items have fairly short legal lives, they can be renewed over and over. As such, they have an indefinite life.

Goodwill is a unique intangible asset. Remember from Chapter 9, that goodwill is the excess of the purchase price paid for another company over the fair value of the net identifiable assets acquired. Such excess may be paid because of the acquired company's outstanding management, earnings record, or other similar features. Goodwill is deemed to have an indefinite life.



chapter 12

Current Liabilities and Employer Obligations

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "current liabilities" chapter are to learn about:

- [The nature and recording of typical current liabilities.](#)
- [Accounting for notes payable.](#)
- [The criteria for recognition and/or disclosure of contingent liabilities.](#)
- [Basic accounting for payroll and payroll related taxes.](#)
- [Other components of employee compensation \(e.g. vacation pay, pensions, and so forth\).](#)

DISCUSSION

CURRENT LIABILITIES

CURRENT LIABILITIES: The current liabilities section of the balance sheet contains obligations that are due to be satisfied in the near term, and includes amounts relating to accounts payable, salaries, utilities, taxes, short-term loans, and so forth. This casual description is inadequate for all situations, so accountants have developed a very specific definition to deal with more issues. *Current liabilities are debts that are due to be paid within one year or the operating cycle, whichever is longer;* further, such obligations will typically involve the use of current assets, the creation of another current liability, or the providing of some service. This enhanced definition is expansive enough to capture less obvious obligations pertaining to items like customer prepayments, amounts collected for and payable to third parties, the portion of long-term debt due within one year or the operating cycle (whichever is longer), accrued liabilities for expenses incurred but not yet paid, and contingent liabilities. However, the definition is not meant to include amounts not yet "incurred." For example, salary to be earned by employees next year is not a current liability (this year) because it has yet to be "incurred."

THE OPERATING CYCLE: Remember that the operating cycle is the length of time it takes to turn cash back into cash. That is, a business starts with cash, buys inventory, sells goods, and eventually collects the sales proceeds in cash. The length of time it takes to do this is the operating cycle. Take careful note of how the operating cycle is included in the above definition of current liabilities: *"one year or the operating cycle, whichever is longer."* For most businesses, the operating cycle is less than one year, but not always. A furniture manufacturer may have to buy and cure wood before it can be processed into a quality product. This could cause the operating cycle to go beyond one year. If that is the case, then current liabilities might include obligations due in more than one year.

ILLUSTRATIONS OF TYPICAL CURRENT OBLIGATIONS:



ACCOUNTS PAYABLE are the amounts due to suppliers relating to the purchase of goods and services. This is perhaps the simplest and most easily understood current liability. Although an **account payable** may be supported by a written agreement, it is more typically based on an informal working

relation where credit has been received with the expectation of making payment in the very near term.

NOTES PAYABLE are formal short-term borrowings usually evidenced by a specific written promise to pay. Bank borrowings, equipment purchases, and some credit purchases from suppliers involve such instruments. The party who agrees to pay is termed the "maker" of the note. Properly constructed, a **note payable** becomes a negotiable instrument, enabling the holder of the note to transfer it to someone else. Notes payable typically involve interest, and their duration varies. When a note is due in less than one year (or the operating cycle, if longer), it is commonly reported as a current liability.

THE CURRENT PORTION OF LONG-TERM DEBT is another frequently encountered current obligation. When a note or other debt instrument is of long duration, it is reported as a long-term liability. However, the amount of principal which is to be paid within one year or the operating cycle, whichever is longer, should be separated and classified as a current liability. For example, a \$100,000 long-term note may be paid in equal annual increments of \$10,000, plus accrued interest. At the end of any given year, the \$10,000 principal due during the following year should be reported as a current liability (along with any accrued interest), with the remaining balance shown as a long-term liability.

ACCRUED LIABILITIES (sometimes called accrued expenses) include items like accrued salaries and wages, taxes, interest, and so forth. These items relate to expenses that accumulate with the passage of time, but will be paid in one lump-sum amount. For example, the cost of employee service accrues gradually with the passage of time. The amount that employees have earned but not been paid is termed accrued salaries and should be reported as a current liability. Likewise, interest on a loan is based on the period of time the debt is outstanding; it is the passage of time that causes the interest payable to accrue. Accrued but unpaid interest is another example of an accrued current liability.

PREPAYMENTS BY CUSTOMERS arise from transactions such as selling magazine subscriptions in advance, selling gift-cards, selling tickets well before a scheduled event, and other similar items where the customer deposits money in advance of receiving the expected good or service. These items represent an obligation on the part of the seller to either return the money or deliver a service in the future. As such, the prepayment is reported as "unearned revenue" within the current liability section of the balance sheet. Recall, [from earlier chapters](#), that the unearned revenue is removed and revenue is recognized as the goods and services are provided. In some cases, customers may never redeem a gift-card. In this situation, it would generally be appropriate to derecognize the liability and record revenue once it is viewed as remote that the card will ever be redeemed and the company has no obligation to remit funds to some governmental jurisdiction (as is sometimes required by law).

COLLECTIONS FOR THIRD PARTIES arise when the recipient of some payment is not the beneficiary of the payment. As such, the recipient has an obligation to turn the money over to another entity. At first, this may strike you as odd. But, consider sales taxes. The seller of merchandise must collect the sales tax on transactions, but then has a duty to pass those amounts along to the appropriate taxing entity. Such amounts are appropriately reflected as a current liability until the funds are remitted to the rightful owner.

OBLIGATIONS TO BE REFINANCED deserve special consideration. A long-term debt may have an upcoming maturity date within the next year. Ordinarily, this note would be moved to the current liability section. However, companies often simply renew such obligations, in essence, borrowing money to repay the maturing note. This poses an interesting question -- should currently maturing long-term debt be shown as a current or a long-term liability if it is going to be renewed by simply rolling the debt into a replacement long-term obligation? What financial statement is fair -- to show the debt as current even though it will not be a claim against current assets -- or to show the debt as long-term even though it is now due? To resolve this issue, accountants have very specific rules: a currently maturing long-term obligation is to be shown as a current liability unless (1) the company intends to renew the debt on a long-term basis, and (2) the company has the ability to do so (ordinarily evidenced by a firm agreement with a competent lender).

NOTES PAYABLE

NOTES PAYABLE: Long-term notes will be considered in the next chapter. For the moment, let's focus on the appropriate accounting for a short-term note. A common scenario would entail the borrowing of money in exchange for the issuance of a promissory note payable. The note will look something like this:

FOR VALUE RECEIVED, the undersigned promises to pay

BancZone, Inc. the sum of:

*****TEN THOUSAND AND NO/100 Dollars***** (\$10,000)

with annual interest of 8% on any unpaid balance. This note shall mature and pay the principal and accrued interest, on:

June 30, 20X8

January 1, 20X8
Issue Date

Now, do not use my illustration above to construct a legal document for your own use; this is an abbreviated illustrative form to focus on the accounting issues. A correct legal form would typically be far more expansive and cover numerous things like what happens in the event of default, who pays legal fees if there is a dispute, requirements of demand and notice, and on and on. In the above note, Oliva has agreed to pay to BancZone \$10,000 plus interest of \$400 on June 30, 20X8. The interest represents 8% of \$10,000 for half of a year.

The amount borrowed is entered in the accounting records by increasing Cash (debit) and Notes Payable (credit). When the note is repaid, the difference between the carrying amount of the note and the cash necessary to repay that note is reported as interest expense. Representative journal entries for the above note follow:

| | | | |
|---------|---|--------|--------|
| 1-1-X8 | <u>Cash</u> | 10,000 | |
| | <u>Note Payable</u> | | 10,000 |
| | <i>To record note payable at 8% per annum; maturity date on 6-30-X8</i> | | |
| 6-30-X8 | <u>Interest Expense</u> | 400 | |
| | <u>Note Payable</u> | 10,000 | |
| | <u>Cash</u> | | 10,400 |
| | <i>To record repayment of note and interest (\$10,000 X 8% X 6/12)</i> | | |

Had the above note been created on October 1, the entries would appear as follows:

| | | | |
|----------|---|--------|--------|
| 10-1-X8 | <u>Cash</u> | 10,000 | |
| | <u>Note Payable</u> | | 10,000 |
| | <i>To record note payable at 8% per annum; maturity date on 3-31-X9</i> | | |
| 12-31-X8 | <u>Interest Expense</u> | 200 | |
| | <u>Interest Payable</u> | | 200 |
| | <i>To record accrued interest for 3 months (\$10,000 X 8% X 3/12)</i> | | |
| 3-31-X9 | <u>Interest Expense</u> | 200 | |
| | <u>Interest Payable</u> | 200 | |
| | <u>Note Payable</u> | 10,000 | |
| | <u>Cash</u> | | 10,400 |
| | <i>To record repayment of note and interest</i> | | |

In the above entries, notice that interest for three months was accrued at December 31, representing accumulated interest that must be paid at maturity on March 31, 20X9. On March 31, another three months of interest was charged to expense. The cash payment included \$400 for interest, half relating to the amount previously accrued in 20X8 and half relating to 20X9.

Next, let's consider how the above amounts would appear in the current liability section of the December 31, 20X8 balance sheet. Observe the inclusion of two separate line items for the note and related interest:



| Current Liabilities | | |
|----------------------|---------------|------------|
| Accounts payable | \$ 90,000 | |
| Salaries payable | 2,000 | |
| Taxes payable | 3,000 | |
| Customer prepayments | 3,000 | |
| Interest payable | 200 | |
| Note payable | <u>10,000</u> | \$ 108,200 |

In noting this illustration, you may wonder about the order for listing specific current obligations. One scheme is to list them according to their due dates, from the earliest to the latest. Another acceptable alternative is to list them by maturity value, from the largest to the smallest.

A FEW WORDS ABOUT INTEREST CALCULATIONS THAT MAY SAVE YOU SOME MONEY: First, some short-term borrowing agreements may stipulate that a year is assumed to have 360 days, instead of the obvious 365 days. In the old days, before calculators, this could perhaps be justified to ease calculations. In modern days, the only explanation is that the lender is seeking to prey on unsuspecting borrowers. For example, interest on a \$100,000, 8% loan for 180 days would be \$4,000 assuming a 360-day year ($\$100,000 \times .08 \times 180/360$), but only \$3,945 based on the more correct 365-day year ($\$100,000 \times .08 \times 180/365$). It is obvious that you should be alert to the stated assumptions intrinsic to a loan agreement.

Next, be aware of the "rule of 78s." Some loan agreements stipulate that prepayments will be based on this tricky technique. A year has 12 months, and $12 + 11 + 10 + 9 + \dots + 1 = 78$; somehow giving rise to the "rule of 78s." Assume that \$100,000 is borrowed for 12 months at 8% interest. The annual interest is \$8,000, but, if the interest attribution method is based on the "rule of 78s," it is assumed that $12/78$ of the total interest is attributable to the first month, $11/78$ to the next, and so forth. If the borrower desired to prepay the loan after just two months, that borrower would be very disappointed to learn that $23/78$ ($12 + 11 = 23$) of the total interest was due ($23/78 \times \$8,000 = \$2,359$). If the interest had been based simply on 2 of 12 months, the amount of interest would come to only \$1,333 ($2/12 \times \$8,000 = \$1,333$).

Compounding is another concept that should be understood. So far in this text, I have assumed simple interest in the illustrated calculations. This merely means that $\text{Interest} = \text{Loan} \times \text{Interest Rate} \times \text{Time}$. But, at some point, it is fair to assume that the accumulated interest will also start to accrue interest -- some people call this "interest on the interest." In the next chapter, this will be examined in much more detail. For the moment, just take note that a loan agreement will address this by stating the frequency of compounding -- annually, quarterly, monthly, daily, and even continuously (which requires a bit of calculus to deduce). The narrower the frequency, the greater the amount of total interest that will be calculated.

One last trick is for the lender to take their interest up front. That is, the note may be issued with interest included in the face value. For example, \$9,000 may be borrowed, but a \$10,000 note is established (interest is not separately stated). At maturity, \$10,000 is repaid, representing a \$9,000 repayment of borrowed amounts and \$1,000 interest. Note that the lender may state that the interest rate is 10% (\$1,000 out of \$10,000), but the effective rate is much higher ($\$1,000$ for $\$9,000 = 11.11\%$ actual rate).



The journal entries for a note with interest included in face value (also known as a note issued at discount), are as follows:

| | | | |
|----------|---|--------|--------|
| 1-1-X8 | <u>Cash</u> | 9,000 | |
| | <u>Discount on Note Payable</u> | 1,000 | |
| | <u>Note Payable</u> | | 10,000 |
| | <i>To record note payable, issued at a discount</i> | | |
| 12-31-X8 | <u>Interest Expense</u> | 1,000 | |
| | <u>Discount on Note Payable</u> | | 1,000 |
| | <i>To record discount amortization</i> | | |
| | <u>Note Payable</u> | 10,000 | |
| | <u>Cash</u> | | 10,000 |
| | <i>To record repayment of note</i> | | |

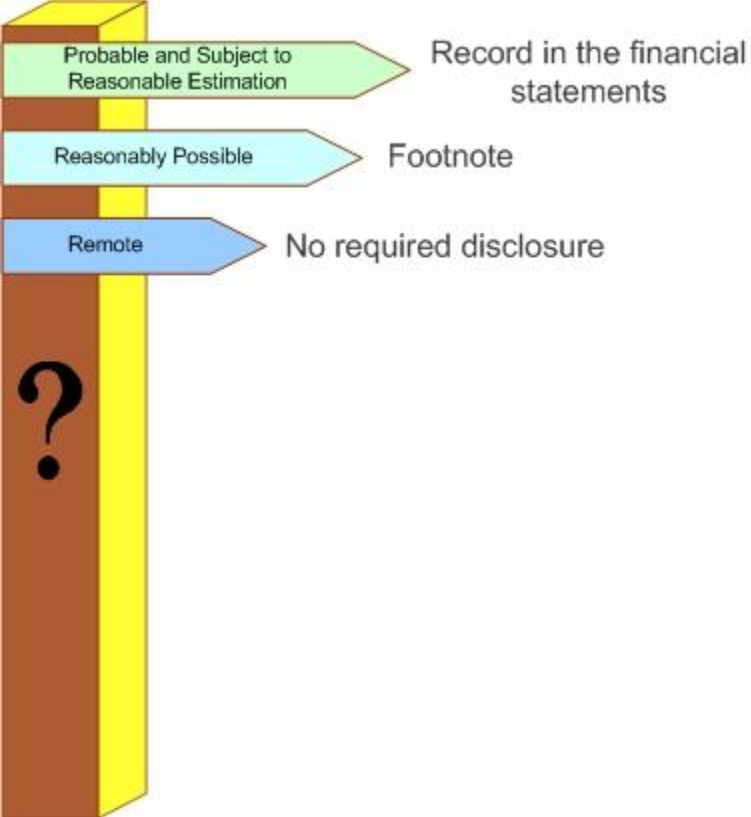
As you examine the above journal entries, note that the \$1,000 difference is initially recorded as a discount on notes payable (on a balance sheet, this would be reported as contra liability; i.e., a \$10,000 notes payable minus a \$1,000 discount, for a net liability equal to the \$9,000 borrowed). Discount amortization transfers the discount to interest expense over the life of the loan. This means that the \$1,000 discount should be recorded as interest expense by debiting Interest Expense and crediting Discount on Notes Payable. In this way, the \$10,000 paid at maturity (credit to Cash) can be offset with an \$10,000 reduction in the Notes Payable account (debit).

Be aware that discount amortization occurs not only at the date of repayment, but also at the end of an accounting period (to record interest expense for the amount attributable to the period). If the preceding example had a maturity date at other than the December 31 year-end, the \$1,000 of interest expense would need to be recorded partially in one period and partially in another.

Now, each of the above points about unique interest calculations is to alert you to devices that lenders can use to tilt the benefit of the bargain to their advantage. As a result, statutes have increasingly required fuller disclosure ("truth in lending") and, in some cases, outright limited certain practices. The best I can tell you is to be careful, and understand the full economics of any borrowing you do. And, if you are lending, be sure to understand the laws that define fair practices and disclosures; a lender who overcharges interest or violates laws (applicable to the particular jurisdiction of the loan) can find themselves legally losing the right to collect amounts loaned. Both borrowers and lenders should be careful -- remember there is an old adage that goes "neither a borrower or lender be." Of course, there are plenty of loans, and you will likely be a party to one someday, so be careful.

CONTINGENT LIABILITIES

UNCERTAINTIES: Some events may eventually give rise to a liability, but the timing and amount is not presently sure. Such uncertain or potential obligations are known as **contingent liabilities**. There are numerous examples of contingent liabilities. Legal disputes give rise to contingent liabilities, environmental contamination events give rise to contingent liabilities, product warranties give rise to contingent liabilities, and so forth. Do not confuse these "firm specific" contingent liabilities with general business risks. General business risks include the risk of war, storms, and



the like which are presumed to be an unfortunate part of life for which no specific accounting can be made in advance.

ACCOUNTING FOR CONTINGENT LIABILITIES: A subjective assessment of the probability of an unfavorable outcome is required to properly account for contingences. Rules specify that contingent liabilities should be recorded in the accounts when it is *probable* that the future event will occur and the amount of the liability can be *reasonably estimated*. This means that a loss would be recorded (debit) and a liability established (credit) in advance of the settlement. An example might be a hazardous waste spill that will require a large outlay to clean up -- it is probable that funds will be spent and the amount can likely be estimated (or at least a range of the amount, in which case at least the lower end of the range is known).

On the other hand, if it is only *reasonably possible* that the contingent liability will become a real liability, then a note to the financial statements is all that is required. Likewise, a note is required when it is probable a loss has occurred but the amount simply cannot be estimated. There is an important lesson for you to learn from these rules: normally, accounting tends to be very conservative (when in doubt, book the liability), but this is not the case for contingent liabilities. Therefore, you should carefully read the notes to the financial statements before you invest or loan money to a company. There are sometimes significant risks that are simply not on the liability section of the balance sheet, because the only recognized contingencies are those meeting the rather strict criteria of "probable" and "reasonably estimable."

What about *remote* risks, like a frivolous lawsuit? Remote risks need not be disclosed; they are viewed as needless clutter. What about business decision risks, like deciding to reduce insurance coverage because of the high cost of the insurance premiums? GAAP is not very clear on this subject; such disclosures are not required, but are not discouraged. What about contingent assets/gains, like a company's claim against another for patent infringement? GAAP does not permit the recognition of such amounts before settlement payments are actually received.

TIMING OF EVENTS: If a customer was injured by a defective product in Year 1 (assume the company anticipates a large estimated loss from a related claim), but the company did not receive notice of the event until Year 2 (but before issuing Year 1's financial statements), the event would nevertheless impact Year 1 financial statements. The reason is that the event ("the injury itself") giving rise to the loss arose in Year 1. Conversely, if the injury occurred in Year 2, Year 1's financial statements would not be adjusted no matter how bad the financial effect. However, a note to the financial statements may be needed to explain that a material adverse event arising subsequent to year end has occurred.

WARRANTY COSTS: Product warranties are presumed to give rise to a probable liability that can be estimated. When goods are sold, an estimate of the amount of warranty costs to be incurred on the goods should be recorded as expense, with the offsetting credit to a **Warranty Liability** account. As warranty work is performed, the Warranty Liability is reduced and Cash (or other resources used) is credited. In this manner, the expense is recorded in the same period as the sale (matching principle). Following are illustrative entries for warranties. In reviewing these entries, carefully note the accompanying explanations:

| | | | |
|----------|--|-----------|-----------|
| XX-XX-XX | <u>Cash</u> | 1,000,000 | |
| | <u>Sales</u> | | 1,000,000 |
| | <i>To record sales</i> | | |
| XX-XX-XX | <u>Warranty Expense</u> | 30,000 | |
| | <u>Warranty Liability</u> | | 30,000 |
| | <i>To record estimated warranty cost equal to 3% of sales (\$1,000,000 X 3%)</i> | | |
| XX-XX-XX | <u>Warranty Liability</u> | 5,000 | |
| | <u>Cash</u> | | 5,000 |
| | <i>Repaired defective products under warranty at a cost of \$5,000</i> | | |



The analytics of warranty calculations require consideration of beginning balances, additional accruals, and warranty work performed. For example, assume Zeff Company had a beginning of year Warranty Liability account balance of \$25,000. Zeff sells goods subject to a one-year warranty, expecting to incur warranty costs equal to 2% of sales. During the year, an additional \$3,500,000 in product sales occurred and \$80,000 was actually spent on warranty work. How much is the end of year Warranty Liability? The T-account reveals the logic that results in an ending warranty liability of \$15,000.

Ask yourself what entries Zeff would make during the year based on these calculations. The entries will be just like those above, but for the revised amounts. The beginning warranty liability (credit balance of \$25,000), plus the additional credit to Warranty Liability (\$70,000), and minus the debit to Warranty Liability (\$80,000) produces the ending Warranty Liability balance of \$15,000.

Many other costs are similar to warranties. Companies may offer coupons, prizes, rebates, air-miles, free hotel stays, free rentals, and similar items associated with sales activity. Each of these gives rise to the need to provide an estimated liability. While the details may vary, the basic procedures and outcomes are similar to those applied to warranties.

PAYROLL

PAYROLL: For most businesses, payroll is perhaps the most significant cost of doing business. And, correctly planning for and managing these costs is enormously important to a business. Employees don't tend to stay long if a payday is missed, so payroll is truly the life's blood of the business.

Before looking at the special issues pertaining to payroll accounting, you should first understand who is an "employee." Many services are provided to a business by other than employees. These services may include janitorial support, legal services, air conditioner repairs, audits, and so forth. An employee is defined as a person who works for a specific business and whose activities are directed by that business -- the business controls what will be done and how it will be done. In contrast, an independent contractor is one who performs a designated task or service for a company -- the company has the right to control or direct only the result of the work done by an independent contractor. The distinction is very important because the payroll tax and record keeping requirements differ for employees and independent contractors. As a general rule, amounts paid to independent contractors do not involve any "tax withholdings" by the payer; however, the payer may need to report the amount paid to the Internal Revenue Service (IRS) on a Form 1099, with a copy to the independent contractor. But, the obligation for paying taxes rests with the independent contractor.

The employer's handling of payroll to employees is another matter entirely. Let us begin by considering the specifics of a paycheck. You may have some work experience, and if you do, you know that the amount you receive is not the amount you have earned. Your check was likely reduced by a variety of taxes, possibly including federal income tax, state income tax, and FICA (social security taxes and medicare/medicaid). Additionally, your check might have been reduced for insurance costs, retirement savings, charitable contributions, special health and child care deferrals, and other similar items. Before you feel singled out, you also need to know that your employer paid additional FICA contributions on your behalf, unemployment taxes, and maybe insurance costs, workers compensation costs, matching contributions to retirement programs, and other items. A business must correctly account for all of this activity.

GROSS EARNINGS: The total earnings of an employee is the "gross pay." For hourly employees, it is the number of hours worked multiplied by the hourly rate. For salaried employees, it is the flat amount for the period, such as \$3,000 per month. Gross pay might be increased for both hourly and salaried employees based on applicable overtime rules. Employers are well advised to monitor statutes relating to overtime; by law, certain employees must be paid for overtime.

NET EARNINGS: Gross earnings less all applicable deductions is the "net pay." Let's examine a representative paycheck, and the attached stub:

| | | |
|---|-----------------------------|-----------------------|
| UNREAL CORPORATION | Check # | 12345 |
| Payroll Account | Date: | July 31, 20XX |
| Pay to the order of | I. M. Fictitious | \$1,834.00 |
| *****One-Thousand, Eight-Hundred, Thirty-Four and no/100 Dollars***** | | |
| NOT a REAL Bank | | |
| Memo | July payroll for Fictitious | <i>Certainly Void</i> |

Detach below before depositing, and save for your records:

| | | | |
|-----------------------|-----------------------------|--------------|-----------------|
| Employee: I. M. | Gross Earnings | | \$3,000.00 |
| Pay Period: July 20XX | Deductions: | | |
| | Federal Income Tax | \$349.00 | |
| | State Income Tax | 117.00 | |
| | Social Security | 180.00 | |
| | Medicare/Medicaid | 45.00 | |
| | Insurance | 175.00 | |
| | Retirement Savings Plan | 200.00 | |
| | Charity | 25.00 | |
| | Health/Child Care Flex Plan | <u>75.00</u> | <u>1,166.00</u> |
| | Net Pay | | \$1,834.00 |

You will notice that I. M. Fictitious earned \$3,000 during the month, but "took home" only \$1,834. The difference was withheld by Unreal Corporation. The withholdings pertained to:

INCOME TAXES -- Employers are required to withhold federal, state (when applicable), and city (when applicable) **income taxes** from an employee's pay. The withheld amounts must be remitted periodically to the government by the employer. In essence, the employer becomes an agent of the government, serving to collect amounts for the government. Withheld amounts that have yet to be remitted to the government are carried as a current liability on the employer's books (recall the earlier mention of amounts collected for third parties). The level of withholdings are based on the employee's level of income, the frequency of pay, marital status, and the number of withholding allowances claimed (based on the number of dependents). Employees claim withholding allowances by filing a form **W-4** with their employer.

It is very important for you to know that the employer's obligation to protect withheld taxes and make certain they are timely remitted to the government is taken very seriously. Employers who fail to do so are subject to harsh penalties for the obvious reason that the funds do not belong to the employer. Likewise, employees who participate in, or are aware of misapplication of such funds can expect serious legal repercussions. You should never be a part of such an activity. The government has made it very simple for employers to remit withheld amounts, as most commercial banks are approved to accept such amounts from employers. Further, there are online systems that allow easy funds transfer. The frequency of the required remittance is dependent upon the size of the employer and the total payroll.

| MEDICARE | | HEALTH INSURANCE | |
|---|--|--|--|
| 1-800-MEDICARE (1-800-633-4227) | | | |
| NAME OF BENEFICIARY JANE DOE | | | |
| MEDICARE CLAIM NUMBER 000-00-0000-A | | SEX FEMALE | |
| IS ENTITLED TO HOSPITAL (PART A) MEDICAL (PART B) | | EFFECTIVE DATE 07-01-1986 07-01-1986 | |
| SIGN HERE → <i>Jane Doe</i> | | | |

SOCIAL SECURITY/MEDICARE TAXES are also known as "**FICA**." FICA stands for Federal Insurance Contributions Act. This Act establishes a tax that transfers money from workers to aged retirees (and certain other persons who are in the unfortunate position of not being able to fully provide for themselves due to disability, loss of a parent, or other serious problem). The social purpose of the tax is to provide a modest income stream to the beneficiaries. This component is the social security tax. Another component of the Act is the medicare/medicaid tax, which provides support for health care costs incurred by retirees (and designated others). You are perhaps aware that these taxes present an actuarial problem, as the aged population is growing relative to the number of workers. And, the tax is a transfer of money from one group to another, rather than being based upon an established insurance-like fund.

The social security tax is presently a designated percentage of income, up to a certain maximum level of annual income per employee. After the maximum is reached, no further amounts are due for that year for that employee. The history of both the rate and maximum level is one of consistent increases over time. For illustrative purposes, I am assuming a 6% social security tax, on an annual income of \$100,000. In the above pay stub, you will note that I. M. Fictitious paid \$180 in social security tax for the month (6% X \$3,000). Since Fictitious has not yet exceeded \$100,000 in gross income for the year-to-date, the annual maximum has not been reached. Once Fictitious exceeds the annual limit (for most employees that never occurs), the tax would cease to be withheld -- only to resume anew in January of the following year. If this tax seems high, you need to know that the employee's amount must be matched by the employer. Thus, the burden associated with this tax is actually twice what is apparent to most employees.

The medicare/medicaid tax is also a designated percentage of income. Unlike the social security tax, there is no annual maximum. This tax is levied on every dollar of gross income, without regard to the employees total earnings. I have assumed a 1.5% rate in the above illustration (1.5% X \$3,000 = \$45). This is another tax the employer must match dollar-for-dollar.

OTHER EMPLOYEE DEDUCTIONS typically occur for employee cost sharing in health care insurance programs, employee contributions to various retirement or other savings plans, charitable contributions, contributions to tax-advantaged health and child care savings programs ("flex accounts"), and so forth. In each case, the employer is acting to collect amounts from the employee, with a resultant fiduciary duty to turn the monies over to another entity.

THE JOURNAL ENTRY FOR PAYROLL: I.M. Fictitious's pay would be recorded as follows:

| | | | |
|---------|---|-------|-------|
| 7-31-XX | Salaries Expense | 3,000 | |
| | Federal Income Tax Payable | | 349 |
| | State Income Tax Payable | | 117 |
| | Social Security Payable | | 180 |
| | Medicare/Medicaid Payable | | 45 |
| | Insurance Payable | | 175 |
| | Retirement Contribution Payable | | 200 |
| | Charitable Contribution Payable | | 25 |
| | Health/Child Flex Payable | | 75 |
| | Cash | | 1,834 |
| | <i>To record payroll of Fictitious</i> | | |



Although not illustrated, as the company remits the withheld amounts to the appropriate entities (i.e., turns the taxes over to the government, retirement contributions to an investment trust, etc.), it would debit the related payable and credit cash.

EMPLOYER PAYROLL TAXES AND CONTRIBUTIONS:

Recall from above, that *social security and medicare/medicaid tax* amounts must be matched by employers.

In addition, the employer must pay *federal and state unemployment taxes*. These taxes are levied to provide funds that are paid to workers who are temporarily unable to find employment. The bulk of unemployment tax is usually levied at the state level since most states choose to administer their own unemployment programs (which is encouraged by the federal government via a system of credits to the federal tax rate). The specific rates will depend on the particular state of employment, and each individual employer's history. Employers who rarely release employees get a favorable rate (since they don't contribute to unemployment problems), but those who do not maintain a stable labor pool will find their rates going higher. Like social security, the unemployment tax stops each year once a certain maximum income level is reached. In this text, I will assume the federal rate is one-half of one percent (0.5%), and the state rate is three percent (3%), on a maximum income of \$10,000. Thus, I assume the federal unemployment tax (**FUTA**) is capped at \$50 per employee and the state unemployment tax (**SUTA**) is capped at \$300.

Many employers will carry *workers' compensation insurance*. The rules about this type of insurance vary from state to state. Generally, this type of insurance provides for payments to workers who sustain on-the-job injuries, and shields the employer from additional claims. But, for companies that do not carry such insurance, the employer has an unlimited exposure to claims related to work place injuries. Nevertheless, the cost of this insurance can be very high (for risky work, like construction), and some employers don't carry such policies. Please be advised that these are very general statements; if you have specific questions about how the rules play out in your state, you should consult appropriate counsel and not rely on this generalization.

Many employers will provide *health care insurance and retirement plan contributions*. These amounts can often be substantial, perhaps even exceeding the amounts contributed by employees on their own behalf.

As you can see, the employer's cost of an employee goes well beyond the amount reported on the pay check. For many companies, the total cost of an employee can be 125% to 150% of the gross earnings. Of course, these added costs also need to be entered in the accounting records. Below is the entry for I. M. Fictitious:

| | | | |
|---------|---|--|-----|
| 7-31-XX | Payroll Tax Expense | | 225 |
| | Employee Benefits Expense | | 675 |
| | Social Security Payable | | 180 |
| | Medicare/Medicaid Payable | | 45 |
| | FUTA Payable | | 0 |
| | SUTA Payable | | 0 |
| | Insurance Payable | | 475 |
| | Retirement Contribution Payable | | 200 |
| | <i>To record employer portion of payroll</i> | | |

taxes and benefits

In preparing this entry it was assumed that (a) FUTA and SUTA bases had already been exceeded earlier in 20XX (hence the related amounts are zero), (b) the employer exactly matched employee contributions to insurance and retirement programs, and (c) the employer incurred workers' compensation insurance of \$300 (bringing total insurance to \$475 (\$175 + \$300)). Note that additional accounts could be used to separate employee benefits expense into more specific sub components (like insurance expense, retirement plan expense, etc.).

ANNUAL REPORTS: Each employee and the Internal Revenue Service is to receive an annual statement regarding compensation. Shortly after the conclusion of a calendar year, an employer must review their employee records and prepare a summary wage and tax statement (commonly called a **W-2**). This information helps employees accurately prepare their own annual federal and state income tax returns, and allows the government to verify amounts reported by those individual taxpayers.

| | | | | | | | |
|--|--|-------------------------|--|--|--|---|--|
| a Control number | | OMB No. 1545-0008 | | Safe, accurate, FAST! Use  | | Visit the IRS website at www.irs.gov/efile . | |
| b Employer identification number (EIN) | | | | 1 Wages, tips, other compensation | | 2 Federal income tax withheld | |
| c Employer name, address, and ZIP code | | | | 3 Social security wages | | 4 Social security tax withheld | |
| | | | | 5 Medicare wages and tips | | 6 Medicare tax withheld | |
| | | | | 7 Social security tips | | 8 Allocated tips | |
| d Employee's social security number | | | | 9 Advance EIC payment | | 10 Dependent care benefits | |
| e Employee's first name and initial | | | | 11 Health, life, dental, and vision insurance | | 12a See instructions for box 12 | |
| | | | | 13 State, local, and foreign tax | | 12b | |
| | | | | 14 Other | | 12c | |
| | | | | | | 12d | |
| | | | | | | | |
| f Employee's address and ZIP code | | | | 15 State | | 16 Local | |
| Employer's state ID number | | State wages, tips, etc. | | State comp. tax | | Local wages, tips, etc. | |
| | | | | | | 17 Local income tax | |
| | | | | | | 20 Locality name | |

Form W-2 Wage and Tax Statement Department of the Treasury—Internal Revenue Service
Copy B—To Be Filed With Employee's FEDERAL Tax Return.
 This information is being furnished to the Internal Revenue Service.

ACCURATE PAYROLL SYSTEMS: As you can tell, accuracy is vital in payroll accounting. Oftentimes, a business may hire an outside firm that specializes in payroll management and accounting. The business then need only provide the outside firm with information about time worked by each employee (and of course the money to cover the gross payroll). The outside firm manages the rest -- providing individual paychecks/deposits, payroll recordkeeping, government compliance reporting, timely processing of tax deposits, and the like. For many businesses, being relieved of the burden of payroll processing is a great relief and allows them to focus on their product and customer.

But, when a business manages its own payroll, very accurate data must be maintained. Most firms will set up a separate payroll journal or data base that tracks information about each employee, as well as in the aggregate. In addition, it is quite common to open a separate payroll bank account into which the gross pay is transferred and from which paychecks and tax



payments are disbursed. This system provides an added control to make sure that employee funds are properly maintained, processed, and reconciled.

OTHER COMPONENTS OF EMPLOYEE COMPENSATION

PAID VACATIONS: Vacations are another element of compensation that many employees receive. In addition to paid vacations, employers may provide for other periods of "**compensated absences**." Examples include paid sick leave, holidays, family emergency time, "comp time" (payback for working overtime), birthdays, jury duty time, military reserve time, and so forth. Sometimes, these benefits accumulate with the passage of time, so that the benefit is a function of tenure with the company. To illustrate, a company may stipulate that one half-day of sick leave and one day of vacation time is accrued for each month of employment.

Because the cost of periods of compensated absence can become quite significant, it is imperative that such amounts be correctly measured and reported. Accounting rules provide that companies expense (debit) and provide a liability (credit) for such accumulated costs when specified conditions are present. Those conditions are that the accumulated benefit (1) relates to services already rendered, (2) is a right that vests or accumulates, (3) is probable to be paid to the employee, and (4) can be reasonably estimated (note that the last two conditions -- probable and reasonably estimable - are purloined from the contingency rules discussed earlier). Vacation pay typically meets these conditions for accrual, while other costs may or may not depending upon the individual company's policies and history. The bottom line here, is that a company will expense the cost of periods of compensated absence as those benefits are earned by the employee (another example of the matching principle); when the employee receives their pay during their time off, the attendant liability will then be reduced.

PENSION PLANS: It is common for a company to offer some form of retirement plan for its employees. These were touched upon in the above illustrated entries. But, more needs to be said about such plans. First, I must point out that this is a very complex area of accounting. Most intermediate textbooks will devote a full chapter to this subject alone, and reducing the discussion to a few paragraphs is a daunting challenge for any author. Let me begin by noting that there are two broad types of **pensions** -- defined contribution plans and defined benefit plans.

With a **defined contribution plan**, an employer promises to make a periodic contribution (usually a set percentage of the employee's salary with some matching portion also put up by the employee) into a separate pension fund account. After a minimum vesting period, the funds become the property of the employee for their benefit once they enter retirement. Prior to withdrawal, the funds might be invested in stocks, bonds, or other approved investments. The employee will receive the full benefit of the funds and the investment returns, usually withdrawing them gradually after retirement. With defined contribution type plans, there will be winners and losers. If such funds are invested well for long periods, they can grow to substantial sums and employees can enjoy great retirement benefits. On the other hand, some persons will be disappointed when the investment performance of their fund fails to meet target performance standards.

For the employer, defined contribution plans offer an important desirable feature: the employer's obligation is known and fixed. Risk is transferred to the employee. Further, the employer ordinarily gets a tax deduction for its contribution, even though the employee does not recognize that contribution as taxable income until amounts are withdrawn from the pension many years later. Another aspect of defined benefit plans is that the accounting is straight-forward. The company merely expenses the required periodic contribution as incurred. Thus the company expenses the retirement plan payment (like in the journal entries above), and no further accounting on the corporate books is necessitated. The pension assets and obligations are effectively transferred to a separate pension trust, greatly simplifying the recordkeeping of the employer.



In stark contrast are the *defined benefit plans*. With these plans the employer's promise becomes more elaborate, and its cost far more uncertain. For example, the company may agree to make annual pension payments equal to 2% (for each year of service) times the average annual salary during the last three years of employment. So, a person who works 30 years and then retires, may be eligible for continuing pay at 60% of their average salary during the last years of employment. Obviously, these plans are fraught with uncertainty. How long will retirees live and draw benefits, how many years will employees work, how much will their salary be, and so on?

Accountants typically rely on actuaries (persons trained and skilled to make assessments about life expectancy and related work force trends) to come up with certain core estimates. Then, those estimates are leveraged into an elaborate accounting model that attempts to produce an estimated annual expense for the eventual pension cost. Some or all of that estimate is funded each year by a transfer of money into a pension trust fund. Those funds are invested and eventually disbursed to retirees, but the company remains obligated for any shortfalls in the pension trust.

On the corporate books, you will find the amount of expense attributed to each year (remember, this amount is only an estimate of actual cost since the true cost will not be known for many years to come). Beyond that, if a company has failed to fund all the amounts expensed to date, or if the pension fund is "underfunded" relative to outstanding pension promises made, a pension liability is reported on its balance sheet. But, the bulk of the pension assets and obligations are carried on the books of the separate pension trust fund.

There has been a clear trend in recent years away from defined benefit plans and toward defined contribution plans. Contributing factors have been to reduce corporate risk, simplify corporate accounting, provide benefits more suitable for transitory work forces, and satisfy workers who perceive that their own investment returns generated via defined contribution plans will produce a better retirement.

OTHER POST RETIREMENT BENEFITS: Some companies provide items like health care coverage, prescriptions, and life insurance. It is not uncommon for an employee to continue to enjoy such benefits after retirement. However, because the employee is no longer working for the company, it is imperative that corporate cost of such benefits be expensed during the period of time during which the employee is actively working for the company and helping it to produce revenues. Again, the matching idea comes into play, where we must expense costs to match the revenue they help to produce. As a result, companies will expense the estimated cost of post retirement benefits over many years, creating an offsetting liability. In later years, as the cost of post retirement benefits is paid out, the liability is accordingly reduced. (note: as with pensions, portions of the liability may appear in the current liability section of the balance sheet, and portions in the long-term section).



chapter 13

Long-Term Obligations

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "long-term obligations" chapter are to learn about:

- [Long-term notes and present value concepts.](#)
- [The nature of bonds and related terminology.](#)
- [Accounting for bonds payable, whether issued at par, a premium or discount.](#)
- [Effective-interest amortization methods.](#)
- [Special considerations for bonds issued between interest dates and for bond retirements.](#)
- [Analysis, commitments, alternative financing arrangements, leases, and fair value measurement.](#)

DISCUSSION

LONG-TERM NOTES

NOTES PAYABLE: The previous chapter illustrations of notes were based on the assumption that the notes were of fairly short duration. Now, let's turn our attention to longer term notes. A borrower may desire a longer term for their loan. It would not be uncommon to find two, three, five-year, and even longer term notes. These notes may evidence a "term loan," where "interest only" is paid during the period of borrowing and the balance of the note is due at maturity. The entries are virtually the same as you saw in the previous chapter. As a refresher, assume that Wilson issued a five-year, 8% term note -- with interest paid annually on September 30 of each year:

| | | | |
|----------|---|--------|--------|
| 10-1-X3 | Cash | 10,000 | |
| | Note Payable | | 10,000 |
| | <i>To record note payable at 8% per annum; maturity date on 9-30-X8</i> | | |
| 12-31-XX | Interest Expense | 200 | |
| | Interest Payable | | 200 |
| | <i>To record accrued interest for 3 months (\$10,000 X 8% X 3/12) at end of each year</i> | | |
| 9-30-XX | Interest Expense | 600 | |



| | | | |
|---------|---|--------|--------|
| | <u>Interest Payable</u> | 200 | |
| | <u>Cash</u> | | 800 |
| | <i>To record interest payment (\$10,000 X 8% = \$800, of which \$200 was previously accrued at the prior year end) each September</i> | | |
| 9-30-X8 | <u>Interest Expense</u> | 600 | |
| | <u>Interest Payable</u> | 200 | |
| | <u>Note Payable</u> | 10,000 | |
| | <u>Cash</u> | | 10,800 |
| | <i>To record final interest payment and balance of note at maturity</i> | | |

Other notes may require level payments over their terms, so that the interest and principal are fully paid by the end of their term. Such notes are very common. You may be familiar with this type of arrangement if you have financed a car or home. By the way, when you finance real estate, payment of the note is usually secured by the property being financed (if you don't pay, the lender can foreclose on the real estate and take it over). Notes thus secured are called "mortgage notes."

HOW DO I COMPUTE THE PAYMENT ON A NOTE?: With the term note illustrated above, it was fairly easy to see that the interest amounted to \$800 per year, and the full \$10,000 balance was due at maturity. But, what if the goal is to come up with an equal annual payment that will pay all the interest and principal by the time the last payment is made? From my years of teaching, I know that students tend to perk up when this subject is covered. It seems to be a relevant question to many people, as this is the structure typically used for automobile and real estate ("mortgage") financing transactions. So, now you are about to learn how to calculate the correct amount of the payment on such a loan. The first step is to learn about future value and present value calculations.

FUTURE VALUE: Let us begin by thinking about how invested money can grow with interest. What will be the **future value** of an investment? If you invest \$1 for one year, at 10% interest per year, how much will you have at the end of the year? The answer, of course, is \$1.10. This is calculated by multiplying the \$1 by 10% ($\$1 \times 10\% = \0.10) and adding the \$0.10 to the dollar you started with.

And, if the resulting \$1.10 is invested for another year at 10%, how much will you have? The answer is \$1.21. That is, $\$1.10 \times 10\% = \0.11 , which is added to the \$1.10 you started with. This process will continue, year after year. The annual interest each year is larger than the year before because of "compounding." Compounding simply means that your investment is growing with accumulated interest, and you are earning interest on previously accrued interest that becomes part of your total investment pool. In contrast to "**compound interest**" is "**simple interest**" that does not provide for compounding, such that \$1 invested for two years at 10% would only grow to \$1.20.

Not to belabor the mathematics of the above observation, but you should note the following formula:

$$(1+i)^n$$

Where "i" is the interest rate per period and "n" is the number of periods

The formula will reveal how much an investment of \$1 will grow to after "n" periods. For example, $(1.10)^2 = 1.21$. Or, if \$1 was invested for 5 years at 6%, then it would grow to about \$1.34 $((1.06)^5 = 1.33823)$. Of course, if \$1,000 was invested for 5 years at 6%, it would grow to \$1,338.23; this is determined by multiplying the derived factor times the amount invested at the beginning of the 5-year period. Hopefully, you will see that it is not a great challenge to figure out how much an up-front lump sum investment can grow to become after a given number of periods at a stated interest rate. This calculation is aptly termed the "future value of a lump sum amount." [Future Value Tables](#) are available that include precalculated values (this link opens a separate window, which you can resize to see the table and ensuing discussion -- just click the "X" when you are finished with it -- if it does not open, adjust your popup blocker software). See if you can find the 1.33823 factor in the linked future value table. Likewise, use the table to determine that \$5,000, invested for 10 years, at 4%, will grow to \$7,401.20 $(\$5,000 \times 1.48024)$.

PRESENT VALUE: **Present value** is the opposite of future value, as it reveals how much a dollar to be received in the future is worth today. The math is simply the reciprocal of future value calculations:

$$1/(1+i)^n$$

Where "i" is the interest rate per period and "n" is the number of periods

For example, \$1,000 to be received in 5 years, when the interest rate is 7%, is presently worth \$712.99 $(\$1,000 \times (1/(1.07)^5))$. Stated differently, if \$712.99 is invested today, it will grow to \$1,000 in 5 years. [Present Value Tables](#) are also available (again, this will open a separate window). Use the linked to table to find the present value of \$50,000 to be received in 8 years at 8%; it is \$27,013.50 $(\$50,000 \times .54027)$.

| Year of Investment | Future Value Factor From Table | Payment | Value of Payment at end of 5th Year |
|--|-----------------------------------|---------|--|
| 1 (<i>amount will be invested 5 years</i>) | 1.27628 | \$1 | \$1.27628 |
| 2 (<i>amount will be invested 4 years</i>) | 1.21551 | \$1 | \$1.21551 |
| 3 (<i>amount will be invested 3 years</i>) | 1.15763 | \$1 | \$1.15763 |
| 4 (<i>amount will be invested 2 years</i>) | 1.1025 | \$1 | \$1.10250 |
| 5 (<i>amount will be invested 1 year</i>) | 1.05 | \$1 | <u>\$1.05000</u> |
| | | | <u>\$5.80192</u> |

ANNUITIES: Streams of level (i.e., the same amount each period) payments occurring on regular intervals are termed "**annuities**." For example, if you were to invest \$1 *at the beginning* of each year at 5% per annum, after 5 years you would have \$5.80. This amount can be painstakingly calculated by summing the future value amount associated with each individual payment, as shown at right.

But, it is much easier to use to an [Annuity Future Value Table](#). The annuity table is simply the summation of individual factors. You will find the "5.80191" factor in the 5% column, 5 year row. These calculations are useful in financial planning. For example, you may wish to have a target

amount accumulated by a certain age, such as with a retirement contribution account. These tables will help you calculate the amount you need to set aside each period to reach your goal.

Conversely, you may be interested in an [Annuity Present Value Table](#). This table (which is simply the summation of amounts from the lump sum present value table - with occasional rounding) shows factors that can be used to calculate the present worth of a level stream of payments to be received *at the end* of each period. Can you use the table to find the present value of \$1,000 to be received at the end of each year for 5 years, if the interest rate is 8% per year, is \$3,992.71? Look at the 5 year row, 8% column and you will see the 3.99271 factor.

RETURNING TO THE ORIGINAL QUESTION: How do you compute the payment on a typical loan that involves even periodic payments, with the final payment extinguishing the remaining balance due? The answer to this question is found in the present value of annuity calculations. Remember that an annuity involves a stream of level payments, just like many loans. Now, think of the payments on a loan as a series of level payments that covers both the principal and interest. The present value of those payments is the amount you borrowed, in essence removing ("discounting") out the interest component. This may still be a bit abstract, and can be further clarified with some equations. You know the following to be true for an annuity:

$$\text{Present Value of Annuity} = \text{Payments} \times \text{Annuity Present Value Factor}$$

A loan that is paid off with a series of equal payments is also an annuity, therefore:

$$\text{Loan Amount} = \text{Payments} \times \text{Annuity Present Value Factor}$$

Thus, to determine the annual payment to satisfy a \$100,000, 5-year loan at 6% per annum:

$$\$100,000 = \text{Payment} \times 4.21236 \text{ (from table)}$$

$$\text{Payment} = \$100,000/4.21236$$

$$\text{Payment} = \$23,739.64$$

You can safely conclude that 5 payments of \$23,739.64 will exactly pay off the \$100,000 loan and all interest. Simply stated, the payments on a loan are just the loan amount divided by the appropriate present value factor. To fully and finally prove this point, let's look at a typical loan amortization table. This table will show how each payment goes to pay the accumulated interest for the period, and reduce the principal, such that the final payment will pay the remaining interest and principal. You should study this table carefully:

| Year | Beginning of Year Loan Balance | Interest on Beginning Balance | Amount of Payment | Principal Reduction (payment minus interest) | Ending Balance |
|------|--------------------------------|----------------------------------|-------------------|--|----------------|
| 1 | \$100,000 | \$6,000 (\$100,000 X 6%) | \$23,739.64 | \$17,739.64 (\$23,739.64 - \$6,000) | \$82,260.36 |
| 2 | \$82,260.36 | \$4,935.62 (\$82,260.36 X 6%) | \$23,739.64 | \$18,804.02 (\$23,739.64 - \$4,935.62) | \$63,456.34 |
| 3 | \$63,456.34 | \$3,807.38 (\$63,456.34 X 6%) | \$23,739.64 | \$19,932.26 (\$23,739.64 - \$3,807.38) | \$43,524.08 |
| 4 | \$43,524.08 | \$2,611.44 (\$43,524.08 X 6%) | \$23,739.64 | \$21,128.20 (\$23,739.64 - \$2,611.44) | \$22,395.89 |
| 5 | \$22,395.89 | \$1,343.75 (\$22,395.89 X 6%) | \$23,739.64 | \$22,395.89 (\$23,739.64 - \$1,343.75) | \$0 |

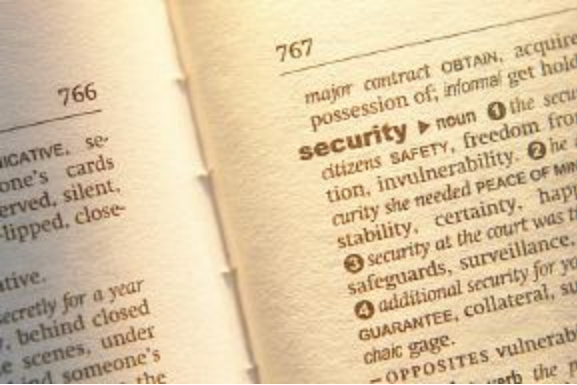
The journal entries associated with the above loan would flow as follows:

| | | | |
|----------|-----------------------------------|------------|------------|
| 1-1-X1 | <u>Cash</u> | 100,000.00 | |
| | <u>Note Payable</u> | | 100,000.00 |
| | <i>To record note payable</i> | | |
| 12-31-X1 | <u>Interest Expense</u> | 6,000.00 | |
| | <u>Note Payable</u> | 17,739.64 | |
| | <u>Cash</u> | | 23,739.64 |
| | <i>To record interest payment</i> | | |
| 12-31-X2 | <u>Interest Expense</u> | 4,935.62 | |
| | <u>Note Payable</u> | 18,804.02 | |
| | <u>Cash</u> | | 23,739.64 |
| | <i>To record interest payment</i> | | |
| 12-31-X3 | <u>Interest Expense</u> | 3,807.38 | |
| | <u>Note Payable</u> | 19,932.26 | |
| | <u>Cash</u> | | 23,739.64 |
| | <i>To record interest payment</i> | | |
| 12-31-X4 | <u>Interest Expense</u> | 2,611.44 | |
| | <u>Note Payable</u> | 21,128.20 | |
| | <u>Cash</u> | | 23,739.64 |
| | <i>To record interest payment</i> | | |

| | | | |
|----------|-----------------------------------|-----------|-----------|
| 12-31-X5 | <u>Interest Expense</u> | 1,343.75 | |
| | <u>Note Payable</u> | 22,395.89 | |
| | <u>Cash</u> | | 23,739.64 |
| | <i>To record interest payment</i> | | |
| | | | |

A FEW FINAL COMMENTS ON FUTURE AND PRESENT VALUE:

- Be very careful in performing annuity related calculations, as some scenarios may involve payments at the beginning of each period (as with the future value illustration above, and the accompanying future value tables), while other scenarios will entail end-of-period payments (as with the note illustration, and the accompanying present value table). In later chapters of this book, you will be exposed to additional future and present value tables and calculations for alternatively timed payment streams (e.g., present value of an annuity with payments at the beginning of each period).
- Payments may occur on other than an annual basis. For example, a \$10,000, 8% per annum loan, may involve quarterly payments over two years. The quarterly payment would be \$1,365.10 ($\$10,000/7.32548$). The 7.32548 present value factor is reflective of 8 periods (four quarters per year for two years) and 2% interest per period (8% per annum divided by four quarters per year). This type of modification does not only pertain to annuities, but also to lump sums. For example, the present value of \$1 invested for five years at 10% compounded semiannually can be determined by referring to the 5% column, ten-period row.
- Numerous calculators include future and present value functions. If you have such a machine, you should become familiar with the specifics of its operation. Likewise, spreadsheet software normally includes embedded functions to help with fundamental present value, future value, and payment calculations. Below is a screen shot of one such routine:

A screenshot of Microsoft Excel. The spreadsheet shows a formula in cell B3: `=PMT(.06,5,100000)`. The 'Function Arguments' dialog box is open, showing the following values: Rate: .06, Nper: 5, Pv: 100000, Fv: (blank), Type: (blank). The result of the function is shown as `= -23739.64004`. The dialog box also includes a description: 'Calculates the payment for a loan based on constant payments and a constant interest rate.' and a note: 'Pv is the present value: the total amount that a series of future payments is worth now.' The 'Formula result =' field shows `-23739.64004`. There are 'OK' and 'Cancel' buttons at the bottom right of the dialog box.

BONDS PAYABLE

BONDS: A borrower may split a large loan into many small units. Each of these units (or **bonds**) is essentially a note payable. Investors will buy these bonds, effectively making a loan to the issuing company. Bonds were introduced to bonds, from an investor's perspective, in [Chapter 9](#).

The specific terms of a bond issue are specified in a bond indenture. This indenture is a written document defining the terms of the bond issue. In addition to making representations about the interest payments and life of the bond, numerous other factors must be addressed:

- Are the bonds **secured** by specific assets that are pledged as collateral to insure payment? If not, the bonds are said to be **debenture** bonds; meaning they do not have specific collateral but are only as good as the general faith and credit of the issuer.
- What is the preference in liquidation in the event of failure? Agreements may provide that some bonds are paid before others.
- To whom and when is interest paid? In the past, some bonds were **coupon bonds**, and these bonds literally had detachable interest coupons that could be stripped off and cashed in on specific dates. One reason for coupon bonds was to ease the



recordkeeping burden on bond issuers -- they merely paid coupons that were turned in for redemption. Coupon bonds also had certain tax implications that are no longer substantive. But, in modern times, most bonds are registered to an owner.

Computerized information systems now facilitate tracking bond owners, and interest payments are commonly transmitted electronically to the registered owner.

Registered bonds are in contrast to *bearer bonds*, where the holder of the physical bond instrument is deemed to be the owner (bearer bonds are rare in the modern economic system).

- Must the company maintain a required sinking fund? A *sinking fund bond* may sound bad, but it is quite the opposite. In the context of bonds, a sinking fund is a required escrow account into which monies are periodically transferred to insure that funds will be available at maturity to satisfy the obligation. As an alternative, some companies will issue *serial bonds*. Rather than the entire issue maturing at once, portions of the serial issue will mature on select dates spread over time.
- Can the bond be converted into stock? One "exciting" type of bond is a *convertible bond*. These bonds enable the holder to exchange the bond for a predefined number of shares of corporate stock. The holder may plan on getting paid the interest plus face amount of the bond, but if the company's stock explodes upward in value, the holder may do much better by trading the bonds for appreciated stock. Why would a company issue convertibles? First, investors love these securities (for obvious reasons) and are usually willing to accept lower interest rates than must be paid on bonds that are not convertible. Another factor is that the company may contemplate its stock going up; by initially borrowing money and later exchanging the debt for stock, the company may actually get more money for its stock than it would have had it issued the stock on the earlier date.
- Is the company able to call the debt? *Callable bonds* provide a company with the option of buying back the debt at a prearranged price before its scheduled maturity. If interest rates go down, the company may not want to be saddled with the higher cost obligations, and can escape the obligation by calling the debt. Sometimes, bonds cannot be called. For example, suppose a company is in financial distress and issues high interest rate debt (known as "*junk bonds*") to investors who are willing to take a chance to bail out the company. If the company is able to manage a turn-around, the investors who took the risk and bought the bonds don't want to have their "high yield" stripped away with an early payoff before scheduled maturity. Bonds that cannot be paid off earlier are sometimes called *nonredeemable*. If you invest in bonds, and want to buy nonredeemable debt, be careful not to confuse it with nonrefundable. *Nonrefundable bonds* can be paid off early, so long as the payoff money is coming from operations rather than an alternative borrowing arrangement. Lastly, you should note that convertible bonds will almost always be callable, enabling the company to force a holder to either cash out or convert. The company will reserve this call privilege because they will want to stop paying interest (by forcing the holder out of the debt) once the stock has gone up enough to know that a conversion is inevitable.

Your head is probably spinning with all these new terms, and you can see that bonds are potentially complex financial instruments. Who enforces all of the requirements for a company's bond issue? Within the bond indenture agreement should be a specified bond trustee. This trustee may be an investment company, law firm, or other independent party. The trustee is to monitor compliance with the terms of the agreement, and has a fiduciary duty to intervene to protect the investor group if the company runs afoul of its covenants.

ACCOUNTING FOR BONDS PAYABLE

AT ITS CORE: A bond payable is just a promise to pay a stream of payments over time (the interest component), and a fixed amount at maturity (the face amount). Thus, it is a blend of an annuity (the interest) and lump sum payment (the face). To determine the amount an investor will

pay for a bond, therefore, requires some present value computations to determine the current worth of the future payments.

To illustrate, let's assume that Schultz Company issues 5-year, 8% bonds. Bonds frequently have a \$1,000 face value, and pay interest every six months. To be realistic, let's hold to these assumptions.

If 8% is the market rate of interest for companies like Schultz (i.e., companies having the same perceived integrity and risk), when Schultz issues its 8% bonds, then Schultz's bonds should sell at face value (also known as "par" or "100"). That is to say, investors will pay \$1,000 for a bond and get back \$40 every six months (\$80 per year, or 8% of \$1,000). At maturity they will also get their \$1,000 investment back. Thus, the return on the investment will equate to 8%.

On the other hand, if the market rate is only 6%, then the Schultz bonds look pretty good because of their higher stated 8% interest rate. This higher rate will induce investors to pay a premium for the Schultz bonds. But, how much more will they pay? The answer to this question is that they will bid up the price to the point that the *effective yield* (in contrast to the stated rate of interest) drops to only equal the going market rate of 6%. Thus investors will pay more than \$1,000 to gain access to the \$40 interest payments every six months and the \$1,000 payment at maturity. The exact amount they will pay is determined by discounting (i.e., calculating the present value) the stream of payments at the market rate of interest. This calculation is demonstrated below, followed by an additional explanation.

Also, consider the alternative scenario. If the market rate is 10% when the 8% Schultz bonds are issued, then no one would want the 8% bonds unless they can be bought at a discount. How much discount would it take to get you to buy the bonds? The discount would have to be large enough so that the *effective yield* on the initial investment would be pushed up to 10%. That is to say, your price for the bonds would be low enough so that the \$40 periodic payment and the \$1,000 at maturity would give you the requisite 10% market rate of return. The exact amount is again determined by discounting (i.e., calculating the present value) the stream of payments at the market rate of interest.

The table below calculates the price under the three different assumed market rate scenarios:

| CASH FLOW FACTS 8% STATED RATE | | PAR SCENARIO MARKET RATE OF 8% | | PREMIUM SCENARIO MARKET RATE OF 6% | | DISCOUNT SCENARIO MARKET RATE OF 10% |
|-----------------------------------|---------|---|---------------------------------|---|---------------------------------|---|
| Payment | Amount | Present Value Factors at 4%, 10 Periods | Present Value (amount X factor) | Present Value Factors at 3%, 10 Periods | Present Value (amount X factor) | Present Value Factors at 5%, 10 Periods |
| Periodic Interest | \$40 | 8.11090 | \$324.44 | 8.5302 | \$341.21 | 7.7217 |
| Maturity Value | \$1,000 | 0.67556 | \$675.56 | 0.74409 | \$744.09 | 0.6139 |
| | | | \$1,000.00 | | \$1,085.30 | |

To further explain, the interest amount on the \$1,000, 8% bond is \$40 every six months. Since the bonds have a 5-year life, there are 10 interest payments (or periods). The periodic interest is an annuity with a 10-period duration, while the maturity value is a lump-sum payment at the end of the tenth period. The 8% market rate of interest equates to a semiannual rate of 4%, the 6%

market rate scenario equates to a 3% semiannual rate, and the 10% rate is obviously 5% per semiannual period. The present value factors are taken from the present value tables ([annuity](#) and [lump-sum](#), respectively). You should take time to trace the factors to the appropriate tables. The present value factors are multiplied times the payment amounts, and the sum of the present value of the components would equal the price of the bond under each of the three scenarios. Note that the 8% market rate assumption produced a bond priced at **\$1,000**, the 6% assumption produced a bond priced at **\$1,085.30** (which includes an \$85.30 premium), and the 10% assumption produced a bond priced at **\$922.78** (which includes a \$77.22 discount).

These calculations are not only correct theoretically, but you will find that they are very accurate financial tools -- reality will emulate theory. But, one point is noteworthy. Bond pricing is frequently done to the nearest 1/32nd. That is, a bond might trade at 103.08. You could easily misinterpret this price as \$1,030.80. But, it actually means 103 and 8/32. In dollars, this would come to \$1,032.50 (\$1,000 X 103.25). So, now you should understand the theory and mechanics of how a bond is priced. It is time to examine the correct accounting.

BONDS ISSUED AT PAR: If Schultz issued 100 of its bonds at par, the following entries would be required, and probably require no additional explanation:

| | | | |
|--------------|--|---------|---------|
| 1-1-X1 | Cash | 100,000 | |
| | Bonds Payable | | 100,000 |
| | <i>To record issuance of 100, 8%, 5-year bonds at par (100 X \$1,000 each)</i> | | |
| periodically | Interest Expense | 4,000 | |
| | Cash | | 4,000 |
| | <i>To record interest payment (this entry occurs on every interest payment date at 6 month intervals -- \$100,000 X 8% X 6/12)</i> | | |
| 12-31-X5 | Bonds Payable | 100,000 | |
| | Cash | | 100,000 |
| | <i>To record payment of face value at maturity</i> | | |

BONDS ISSUED AT A PREMIUM: You will likely need to reread this paragraph several times before it really starts to sink in. One very simple way to consider bonds issued at a premium is to reduce accounting to its simplest logic -- counting money! If Schultz issues 100 of the 8%, 5-year bonds when the market rate of interest is only 6%, then the cash received is \$108,530 (see the previous discussion for the related calculations). Schultz will have to repay a total of \$140,000 (\$4,000 every 6 months for 5 years, plus \$100,000 at maturity). Thus, Schultz will repay \$31,470 more than was borrowed (\$140,000 - \$108,530). This \$31,470 must be expensed over the life of the bond; uniformly spreading the \$31,470 over 10 six-month periods produces periodic *interest expense* of \$3,147 (do not confuse this amount with the *cash payment* of \$4,000 that must be paid every six months!). Another way to consider this problem is to note that total borrowing cost is reduced by the \$8,530 premium, since less is to be repaid at maturity than was borrowed up front. Therefore, the \$4,000 periodic *interest payment* is reduced by \$853 of premium

amortization each period (\$8,530 premium amortized on a straight line basis over the 10 periods), producing the periodic *interest expense* of \$3,147 (\$4,000 - \$853)!

This topic is inherently confusing, and the journal entries are actually helpful in clarifying your understanding. As you look at these entries, notice that the premium on bonds payable is carried in a separate account (unlike accounting for investments in bonds covered in a prior chapter, where the premium was simply included with the Investment in Bonds account).

| | | | |
|--------------|---|---------|---------|
| 1-1-X1 | <u>Cash</u> | 108,530 | |
| | <u>Premium on Bonds Payable</u> | | 8,530 |
| | <u>Bonds Payable</u> | | 100,000 |
| | <i>To record issuance of 100, 8%, 5-year bonds at premium</i> | | |
| periodically | <u>Interest Expense</u> | 3,147 | |
| | <u>Premium on Bonds Payable</u> | 853 | |
| | <u>Cash</u> | | 4,000 |
| | <i>To record interest payment (this entry occurs on every interest payment date at 6 month intervals) and amortization of premium</i> | | |
| 12-31-X5 | <u>Bonds Payable</u> | 100,000 | |
| | <u>Cash</u> | | 100,000 |
| | <i>To record payment of face value at maturity</i> | | |

By carefully studying the following illustration you will observe that the Premium on Bonds Payable is established at \$8,530, then reduced by \$853 every interest date, bringing the final balance to zero at maturity.

Long-term Liabilities

| | | | |
|--|----|--------------|------------|
| Bonds payable | \$ | 100,000 | |
| Plus: Unamortized premium on bonds payable | | <u>3,412</u> | \$ 103,412 |

| Period Ending | Bonds Payable | Unamortized Premium | Net Book Value (Bonds Payable plus Premium) | Interest Expense (Cash paid less Premium Amortization) |
|---------------|---------------|---------------------|---|--|
| | \$ 100,000 | \$ 8,530 | \$ 108,530 | |
| 6-30-X1 | 100,000 | 7,677 | 107,677 | \$ 3,147 |
| 12-31-X1 | 100,000 | 6,824 | 106,824 | 3,147 |
| 6-30-X2 | 100,000 | 5,971 | 105,971 | 3,147 |
| 12-31-X2 | 100,000 | 5,118 | 105,118 | 3,147 |
| 6-30-X3 | 100,000 | 4,265 | 104,265 | 3,147 |
| 12-31-X3 | 100,000 | 3,412 | 103,412 | 3,147 |
| 6-30-X4 | 100,000 | 2,559 | 102,559 | 3,147 |
| 12-31-X4 | 100,000 | 1,706 | 101,706 | 3,147 |
| 6-30-X5 | 100,000 | 853 | 100,853 | 3,147 |
| 12-31-X5 | 100,000 | - | 100,000 | 3,147 |

On any given financial statement date, Bonds Payable is reported on the balance sheet as a liability, along with the unamortized Premium appended thereto (known as an "adjunct" account). To illustrate, the balance sheet disclosure as of 12-31-X3 would appear as shown at right:

The income statement for all of 20X3 would include \$6,294 of interest expense ($\$3,147 \times 2$). This method of accounting for bonds issued a premium is known as the straight-line amortization method, as interest expense is recognized uniformly over the life of the bond. The technique offers the benefit of simplicity, but it does have one conceptual shortcoming. Notice that interest expense is the same each year, even though the net book value of the bond (bond plus remaining premium) is declining each year due to amortization. As a result, interest expense each year is not exactly equal to the effective rate of interest (6%) that was implicit in the pricing of the bonds. For 20X1, interest expense can be seen to be roughly 5.8% of the bond liability ($\$6,294$ expense divided by beginning of year liability of $\$108,530$). For 20X4, interest expense is roughly 6.1% ($\$6,294$ expense divided by beginning of year liability of $\$103,412$). Accountants have devised a more precise approach to account for bond issues called the effective-interest method. Be aware that the more theoretically correct effective interest method is actually the required method, except in those cases where the straight-line results do not differ materially. Effective-interest techniques are introduced in a following section of this chapter.

BONDS ISSUED AT A DISCOUNT: If Schultz issues 100 of the 8%, 5-year bonds for $\$92,278$ (when the market rate of interest is 10% -- see the previous discussion for exact calculations), Schultz will still have to repay a total of $\$140,000$ ($\$4,000$ every 6 months for 5 years, plus $\$100,000$ at maturity). Thus, Schultz will repay $\$47,722$ ($\$140,000 - \$92,278$) more than was borrowed. This $\$47,722$ must be expensed over the life of the bond; spreading the $\$47,722$ over 10 six-month periods produces periodic *interest expense* of $\$4,772.20$ (do not confuse this amount with the *cash payment* of $\$4,000$ that must be paid every six months!). Another way to consider this problem is to note that the total borrowing cost is increased by the $\$7,722$ discount, since more is to be repaid at maturity than was borrowed upfront. Therefore, the $\$4,000$ periodic *interest payment* is increased by $\$772.20$ of discount amortization each period ($\$7,722$ discount amortized on a straight line basis over the 10 periods), producing periodic *interest expense* that totals $\$4,772.20$!

Now, let's look at the entries for the bonds issued at a discount. Like bond premiums, discounts are also carried in a separate account.

Long-term Liabilities

| | | | |
|---|----|----------------|-----------|
| Bonds payable | \$ | 100,000 | |
| Less: Unamortized discount on bonds payable | | <u>(3,861)</u> | \$ 96,139 |

| | | | |
|--------------|--|--|---------|
| 1-1-X1 | <u>Cash</u> | | 92,278 |
| | <u>Discount on Bonds Payable</u> | | 7,722 |
| | <u>Bonds Payable</u> | | 100,000 |
| | <i>To record issuance of 100, 8%, 5-year bonds at discount</i> | | |
| periodically | <u>Interest Expense</u> | | 4,772 |
| | <u>Discount on Bonds Payable</u> | | 772 |
| | <u>Cash</u> | | 4,000 |
| | <i>To record interest payment (this entry occurs on every interest payment date at 6 month intervals) and amortization of discount</i> | | |
| 12-31-X5 | <u>Bonds Payable</u> | | 100,000 |
| | <u>Cash</u> | | 100,000 |
| | <i>To record payment of face value at maturity</i> | | |

By carefully studying this illustration, you will observe that the Discount on Bonds Payable is established at \$7,722, then reduced by \$772.20 on every interest date, bringing the final balance to zero at maturity. On any given financial statement date, Bonds Payable is reported on the balance sheet as a liability, along with the unamortized Discount that is subtracted (known as a "contra" account). The illustration at right shows the balance sheet disclosure as of June 30, 20X3. Note that the unamortized discount on this date is determined by calculations revealed in the following table:

| Period Ending | Bonds Payable | Unamortized Discount | Net Book Value (Bonds Payable less Discount) | Interest Expense (Cash paid plus Discount Amortization) |
|---------------|---------------|----------------------|--|---|
| | \$ 100,000 | \$ 7,722.00 | \$ 92,278.00 | |
| 6-30-X1 | 100,000 | 6,949.80 | 93,050.20 | \$ 4,772.20 |
| 12-31-X1 | 100,000 | 6,177.60 | 93,822.40 | 4,772.20 |
| 6-30-X2 | 100,000 | 5,405.40 | 94,594.60 | 4,772.20 |
| 12-31-X2 | 100,000 | 4,633.20 | 95,366.80 | 4,772.20 |
| 6-30-X3 | 100,000 | 3,861.00 | 96,139.00 | 4,772.20 |
| 12-31-X3 | 100,000 | 3,088.80 | 96,911.20 | 4,772.20 |
| 6-30-X4 | 100,000 | 2,316.60 | 97,683.40 | 4,772.20 |
| 12-31-X4 | 100,000 | 1,544.40 | 98,455.60 | 4,772.20 |
| 6-30-X5 | 100,000 | 772.20 | 99,227.80 | 4,772.20 |
| 12-31-X5 | 100,000 | - | 100,000.00 | 4,772.20 |

The income statement for each year would include \$9,544.40 of interest expense ($\$4,772.20 \times 2$) under this straight-line approach. It again suffers from the same theoretical limitations that were discussed for the straight-line premium example. But, it is an acceptable approach if the results are not materially different from those that would result with the effective-interest amortization technique.

EFFECTIVE-INTEREST AMORTIZATION METHODS

THE EFFECTIVE-INTEREST METHOD: The theoretically preferable approach to recording premium and discount amortization is the **effective-interest method**. It recognizes interest expense as a constant *percentage* of the bond's carrying value, rather than as an equal dollar amount each year. The theoretical merit rests on the fact that the interest calculation aligns with the basis on which the bond was priced; that is to say, the interest expense is calculated as the effective-interest rate times the bond's carrying value for each period. The amount of amortization is the difference between the cash paid for interest and the calculated amount of bond interest expense.

THE PREMIUM ILLUSTRATION: Recall that when Schultz issued its bonds to yield 6%, it received \$108,530. Thus, effective interest for the first six months is $\$108,530 \times 6\% \times 6/12 = \$3,255.90$. Of this amount, \$4,000 is paid in cash and \$744.10 ($\$4,000 - \$3,255.90$) is premium amortization. The premium amortization reduces the net book value of the debt to \$107,785.90 ($\$108,530 - \744.10). This new balance would then be used to calculate the effective interest for the next period. This process would be repeated period after period. The following table demonstrates the full amortization process for the life of Schultz's bonds.

| Period Ending | Beginning of Period Net Book Value of Bonds Payable | Interest Expense (Net Book Value X 6% X 6/12) | Amount of Payment | Premium Amortization (payment minus expense) | End of Period Net Book Value (beginning balance less amortization) |
|---------------|---|---|-------------------|--|--|
| 6-30-X1 | \$ 108,530.00 | \$ 3,255.90 | \$ 4,000.00 | \$ 744.10 | \$ 107,785.90 |
| 12-31-X1 | 107,785.90 | 3,233.58 | 4,000.00 | 766.42 | 107,019.48 |
| 6-30-X2 | 107,019.48 | 3,210.58 | 4,000.00 | 789.42 | 106,230.06 |
| 12-31-X2 | 106,230.06 | 3,186.90 | 4,000.00 | 813.10 | 105,416.96 |
| 6-30-X3 | 105,416.96 | 3,162.51 | 4,000.00 | 837.49 | 104,579.47 |
| 12-31-X3 | 104,579.47 | 3,137.38 | 4,000.00 | 862.62 | 103,716.86 |
| 6-30-X4 | 103,716.86 | 3,111.51 | 4,000.00 | 888.49 | 102,828.36 |
| 12-31-X4 | 102,828.36 | 3,084.85 | 4,000.00 | 915.15 | 101,913.21 |
| 6-30-X5 | 101,913.21 | 3,057.40 | 4,000.00 | 942.60 | 100,970.61 |
| 12-31-X5 | 100,970.61 | 3,029.39 | 4,000.00 | 970.61 | 100,000.00 |

The initial journal entry to record the issuance of the bonds, and the final journal entry to record repayment at maturity would be identical to those demonstrated for the straight-line method. However, each journal entry to record the periodic interest expense recognition would vary and can be determined by reference to the above amortization table. For instance, the recording of interest on 6-30-X3 would appear as follows:

| | | |
|---------|--|----------|
| 6-30-X3 | Interest Expense | 3,162.51 |
| | Premium on Bonds Payable | 837.49 |

| | | | |
|--|---|--|-------|
| | <u>Cash</u> | | 4,000 |
| | <i>To record interest payment and amortization of premium</i> | | |

The resulting balance sheet disclosure as of June 30, 20X3, would include the following:

| | | | |
|--|----|--------------|------------|
| Long-term Liabilities | | | |
| Bonds payable | \$ | 100,000 | |
| Plus: Unamortized premium on bonds payable | | <u>4,579</u> | \$ 104,579 |

With effective-interest techniques, interest expense varies in direct proportion to the ever reducing amount of debt. Thus, interest expense is a constant *percentage* of the reported debt rather than a constant *amount* of expense as with the straight-line method.

THE DISCOUNT ILLUSTRATION: Recall that when Schultz issued its bonds to yield 10%, it received only \$92,278. Thus, effective interest for the first six months is $\$92,278 \times 10\% \times 6/12 = \$4,613.90$. Of this amount, \$4,000 is paid in cash, and \$613.90 is discount amortization. The discount amortization increases the net book value of the debt to \$92,891.90 ($\$92,278.00 + \613.90). This new balance would then be used to calculate the effective interest for the next period. This process would be repeated period after period. The following table demonstrates the full amortization process for the life of Schultz's bonds.

| Period Ending | Beginning of Period Net Book Value of Bonds Payable | Interest Expense (Net Book Value X 10% X 6/12) | Amount of Payment | Discount Amortization (expense minus payment) | End of Period Net Book Value (beginning balance plus amortization) |
|---------------|---|--|-------------------|---|--|
| 6-30-X1 | \$ 92,278.00 | \$ 4,613.90 | \$ 4,000.00 | \$ 613.90 | \$ 92,891.90 |
| 12-31-X1 | 92,891.90 | 4,644.60 | 4,000.00 | 644.60 | 93,536.50 |
| 6-30-X2 | 93,536.50 | 4,676.82 | 4,000.00 | 676.82 | 94,213.32 |
| 12-31-X2 | 94,213.32 | 4,710.67 | 4,000.00 | 710.67 | 94,923.99 |
| 6-30-X3 | 94,923.99 | 4,746.20 | 4,000.00 | 746.20 | 95,670.19 |
| 12-31-X3 | 95,670.19 | 4,783.51 | 4,000.00 | 783.51 | 96,453.69 |
| 6-30-X4 | 96,453.69 | 4,822.68 | 4,000.00 | 822.68 | 97,276.38 |
| 12-31-X4 | 97,276.38 | 4,863.82 | 4,000.00 | 863.82 | 98,140.20 |
| 6-30-X5 | 98,140.20 | 4,907.01 | 4,000.00 | 907.01 | 99,047.21 |
| 12-31-X5 | 99,047.21 | 4,952.79 | 4,000.00 | 952.79 | 100,000.00 |

The initial journal entry to record the issuance of the bonds, and the final journal entry to record repayment at maturity, would be identical to those demonstrated for the straight-line method. However, each journal entry to record the periodic interest expense recognition would vary, and can be determined by reference to the above amortization table. For instance, the recording of interest on June 30, 20X3, would appear as follows:

| | | | |
|---------|----------------------------------|-------|-----|
| 6-30-X3 | <u>Interest Expense</u> | 4,746 | |
| | <u>Discount on Bonds Payable</u> | | 746 |

| | | | |
|--|--|--|-------|
| | <u>Cash</u> | | 4,000 |
| | <i>To record interest payment and amortization of discount</i> | | |

The resulting balance sheet disclosure as of June 30, 20X3, would include the following:

| | | | |
|---|--|----------------|-----------|
| Long-term Liabilities | | | |
| Bonds payable | | \$ | 100,000 |
| Less: Unamortized discount on bonds payable | | <u>(4,330)</u> | \$ 95,670 |

BONDS ISSUED BETWEEN INTEREST DATES AND BOND RETIREMENTS

BONDS MAY BE ISSUED BETWEEN INTEREST PAYMENT DATES: This issue is best understood in the context of a specific example. Suppose Thompson Corporation proposed to issue \$100,000 of 12% bonds, dated April 1, 20X1. However, despite the April 1 date, the actual issuance was slightly delayed, and the bonds were not sold until June 1. Nevertheless, the covenant pertaining to the bonds specifies that the first 6-month interest payment date will occur on September 30 in the amount of \$6,000 ($\$100,000 \times 12\% \times 6/12$). In effect, interest for April and May has already accrued ($\$100,000 \times 12\% \times 2/12 = \$2,000$) at the time the bonds are actually issued. To be fair, Thompson will collect \$2,000 from the purchasers of the bonds at the time of issue, and then return it within the \$6,000 payment on September 30 -- effectively causing the net difference of \$4,000 to represent interest expense for June, July, August, and September ($\$100,000 \times 12\% \times 4/12$). The resulting journal entries are:

| | | | |
|---------|---|--|---------|
| 6-1-X1 | <u>Cash</u> | | 102,000 |
| | <u>Interest Payable</u> | | 2,000 |
| | <u>Bonds Payable</u> | | 100,000 |
| | <i>To record issuance of 100, 12% bonds</i> | | |
| 9-30-X1 | <u>Interest Expense</u> | | 4,000 |
| | <u>Interest Payable</u> | | 2,000 |
| | <u>Cash</u> | | 6,000 |
| | <i>To record interest payment (includes return of accrued interest payable from original issue on June 1)</i> | | |

You should also be aware that the concepts just revealed for bonds issued between interest payment dates are also applicable to bonds that are traded between investors. There is no requirement, indeed no expectation, that bond investors will continue to hold bonds to maturity. Bonds are financial instruments that are traded between investors, just like stocks. When bond investors sell bonds between interest dates, they will receive from the purchaser the price plus accrued interest, knowing that the purchaser will then receive a full period's interest on the next regularly scheduled interest date. This mechanism is intended to simplify the bond issuer's accounting by allowing one interest payment to the current holder, rather than having to provide pro-rata payments to the various investors who have held the bonds for a portion of each interest period.

Someday you will likely consider investing in bonds, and this information about the handling of accrued interest between interest dates will come in useful to you. And, you also need to be keenly aware that your bond investments can change in value. Remember that the value of a bond is a function of the bond's stated rate of interest in relation to the going market rate of interest. If market interest rates rise while you hold your bond investment, look for its market value to decline (reflecting a lower present value based on the higher discount rate) -- and vice versa. Of course, if you hold on to the bond to maturity, its value will converge to the face value (so long as the issuer does not go broke)! Additional information on accounting for bond investments is included in Chapter 9.

YEAR-END INTEREST ACCRUALS: Continuing the illustration for Thompson, what December 31, 20X1, adjusting entry would be needed to bring the books current at year end? Notice that interest was paid in full through September 30. Therefore, the year-end entry must reflect the accrual of interest for October through December:

| | | | |
|----------|---|-------|-------|
| 12-31-X1 | <u>Interest Expense</u> | 3,000 | |
| | <u>Interest Payable</u> | | 3,000 |
| | <i>To record accrued interest at year end for three months (\$100,000 X 12% X 3/12)</i> | | |

When the next interest payment date arrives on March 31, the actual interest payment will cover the previously accrued interest, and additional amounts pertaining to January, February, and March:

| | | | |
|---------|---|-------|-------|
| 3-31-X2 | <u>Interest Expense</u> | 3,000 | |
| | <u>Interest Payable</u> | 3,000 | |
| | <u>Cash</u> | | 6,000 |
| | <i>To record interest payment (includes accrued interest payable from prior year)</i> | | |

Any end-of-period entries would also include adjustments of interest expense for the amortization of existing bond premiums or discounts relating to the elapsed time periods.

BONDS MAY BE RETIRED BEFORE SCHEDULED MATURITY: Early retirements of debt may occur, because a company has generated sufficient cash reserves from operations, and the company wants to stop paying interest on outstanding debt. Or, interest rates may have changed, and the company wants to take advantage of more favorable borrowing opportunities; you have probably heard of individuals engaging in this type of strategy when they "refinance" a home loan.

Whether the debt is being retired or refinanced in some other way, accounting rules dictate that the retired debt be removed from the books, and that the difference between the debt's net carrying value and the funds paid to retire the debt be recognized as a gain or loss. For instance, assume that Cabano Corporation is retiring \$200,000 face of its 6% bonds payable. The last semiannual interest payment occurred on April 30, and the bonds are being retired on June 30, 20X5. The unamortized discount on the bonds at April 30, 20X5, was \$6,000, and there was a 5-year remaining life on the bonds as of that date. Further, Cabano is paying \$210,000, plus accrued interest, to retire the bonds; this "early call" price was stipulated in the original bond covenant.

The first step to account for this bond retirement is to bring the accounting for interest up to date:

| | | | |
|---------|---|-------|-------|
| 6-30-X5 | <u>Interest Expense</u> | 2,200 | |
| | <u>Discount on Bonds Payable</u> | | 200 |
| | <u>Interest Payable</u> | | 2,000 |
| | <i>To record interest accrual and amortization of discount (\$200,000 X 6% X 2/12 months = \$2,000; \$6,000 discount X 2/60 months = \$200)</i> | | |

Then, the actual bond retirement can be recorded, with the difference between the up-to-date carrying value and the funds utilized being recorded as a loss (debit) or gain (credit).

| | | | |
|---------|---|---------|---------|
| 6-30-X5 | <u>Bonds Payable</u> | 200,000 | |
| | <u>Interest Payable</u> | 2,000 | |
| | <u>Loss on Bond Retirement</u> | 15,800 | |
| | <u>Discount on Bonds Payable</u> | | 5,800 |
| | <u>Cash</u> | | 212,000 |
| | <i>To record retirement of debt (loss = \$210,000 - (\$200,000 - \$5,800) = \$15,800)</i> | | |

Notice that Cabano's loss relates to the fact that it took a lot more cash (\$210,000) to pay off the debt than was the debt's carrying value (\$194,200 (\$200,000 minus \$5,800)).

ANALYSIS, COMMITMENTS, ALTERNATIVE FINANCING ARRANGEMENTS, LEASES, AND FAIR VALUE MEASUREMENT

DEBT ANALYSIS: Careful analysis is essential in making judgments about an entity's financial health. One form of analysis is ratio analysis where certain key metrics are evaluated against one another. One such ratio is "debt to total assets." This ratio shows the percentage of total capitalization that is provided by the creditors of a business:

$$\text{Debt to Total Assets Ratio} = \text{Total Debt} / \text{Total Assets}$$

A related ratio would be "debt to equity" that divides total debt by total equity:

$$\text{Debt to Equity Ratio} = \text{Total Debt} / \text{Total Equity}$$

The debt to asset and debt to equity ratios are carefully monitored by investors, creditors, and analysts. The ratios are often seen as signs of financial strength when "small," or signs of vulnerability when "large." Of course, small and large are relative terms. Some industries, like the utilities, are inherently dependent on debt financing but may, nevertheless, be very healthy. On the other hand, some high-tech companies may have little or no debt but be seen as vulnerable due to their intangible assets with potentially fleeting value. In short, one must be careful to correctly interpret a company's debt-related ratios. One must also be careful to recognize signals and trends that may be revealed by careful monitoring of these ratios.

Another ratio is the "times interest earned ratio:"



Times Interest Earned Ratio = Income Before Income Taxes and Interest/Interest Charges

This ratio is intended to demonstrate how many times over the income of the company is capable of covering its unavoidable interest obligation. If this number is relatively small, it may signal that the company is on the verge of not generating sufficient operating results to cover its mandatory interest obligation.

There are numerous other ratios that can be described; in fact, many of these are covered in other chapters (along with mathematical illustrations). However, while ratio analysis is an important part of evaluating a company's financial health, one cannot be too careful or place undue reliance on any single evaluative measure. This will become quite apparent as you read the final concluding comments below.

CONTRACTUAL COMMITMENTS AND ALTERNATIVE FINANCING ARRANGEMENTS: A company may enter into a long-term agreement to buy a certain quantity of supplies from another company, agree to make periodic payments under a lease (or similar arrangement) for many years to come, agree to deliver products at fixed prices in the future, and so forth. There is effectively no limit or boundary on the nature of these commitments and agreements. Oftentimes, such situations do not result in a presently recorded obligation, but may give rise to an obligation in the future. This introduces a myriad of accounting issues that are beyond the scope of introductory accounting courses, but a few generalizations are in order. First, footnote disclosures are generally required for the aggregate amount of committed payments that must be made in the future (with a year by year breakdown). Second, changes in the value of such commitments may entail loss recognition when a company finds itself locked into a future transaction that will have negative economic effects (e.g., committing to buy oil at \$80 per barrel when the current price has declined to \$65). From these observations, one thing should be clear to you -- beware to not limit your evaluation of a company to just the numbers on the balance sheet, as significant other financial details are often found in notes to the financial statements.

CAPITAL LEASES: A previous chapter introduced the idea of a "capital lease." Such transactions enable the lessee to acquire needed productive assets, not by outright purchase, but by leasing. You may find it helpful to briefly review the discussion in [Chapter 10](#). The economic substance of capital leases, in sharp contrast to their legal form, is such that the lessee effectively assumes the risks and rewards of owning the asset. Further, the accompanying obligation for lease payments is akin to a note payable. That is, the lessee is under contract to make a stream of payments over time that substantively resembles the stream of payments that would have occurred had the lessee purchased the asset via a promissory note. Accounting rules attempt to track economic substance ahead of legal form. Thus, when an asset is acquired via a capital lease, the initial recording is to establish both the asset and related obligation on the lessee's balance sheet.

Assume that equipment with a five-year life is leased on January 1, 20X1, and the lease agreement provides for 5 end-of-year lease payments of \$23,739.64 each. At the time the lease was initiated, the lessee's incremental borrowing rate (the interest rate the lessee would have incurred on similar debt financing) is assumed to be 6%. The accountant would discount the stream of payments using the 6% interest rate and find that the present value of the fixed noncancelable lease payments is \$100,000. Therefore, the following entry would be necessary to record the lease:

| | | | |
|--------|--|---------|---------|
| 1-1-X1 | Equipment | 100,000 | |
| | Obligation Under Capital Lease | | 100,000 |
| | <i>To record capital lease at present value of</i> | | |

fixed noncancelable lease payments
 (\$23,739.64 X PV Factor of 4.21236)

After the initial recording, the accounting for the asset and obligation take separate paths. The asset is typically depreciated over the lease term (or useful life, depending on a variety of conditions). The depreciation method might be straight-line or an accelerated approach. Essentially, the leased asset is accounted for like any other owned asset of the company. The Obligation Under Capital Lease is accounted for like a note payable. In the above example, the amounts happen to correspond to the amounts illustrated for the mortgage note introduced earlier in the chapter. Therefore, the first lease payment would be accounted for as follows:

| | | | |
|----------|--|-----------|-----------|
| 12-31-X1 | Interest Expense | 6,000.00 | |
| | Obligation Under Capital Lease | 17,739.64 | |
| | Cash | | 23,739.64 |
| | <i>To record first lease payment (interest portion = \$100,000 X 6%)</i> | | |

Notice that this entry results in recording interest expense -- not rent. This scheme would be applied for each successive payment, until the final payment extinguishes the Obligation Under Capital Lease account. The accounting outcome is virtually identical (i.e., changing amounts of interest expense as the obligation is reduced over time) to that associated with the mortgage note illustrated earlier in the chapter.

THE FAIR VALUE MEASUREMENT OPTION: The Financial Accounting Standards Board recently issued a profound standard, "*The Fair Value Option for Financial Assets and Financial Liabilities*." The title is quite revealing. Companies are now permitted, but not required, to measure certain financial liabilities at fair value. Changes in fair value can result from many factors, including market conditions pertaining to the overall interest rate environment. Entities that opt for this standard are to report unrealized gains and losses on items for which the fair value option has been elected in earnings at each subsequent reporting date. This new standard is a profound shift in methodology, and has the potential to eventually reshape debt accounting. Because the new standard is "optional" and somewhat "controversial," it is very difficult to predict its practical effect and eventual implications. However, it is indicative of a clear intent to embrace more fair value methodology into the overall accounting framework.



chapter 14

Corporate Equity Accounting

[goals](#) [discussion](#) [goals achievement](#) [fill in the blanks](#) [multiple choice](#) [problems](#) [check list and key terms](#)

GOALS

Your goals for this "corporate" chapter are to learn about:

- [Characteristics of the corporate form of organization.](#)
- [Common and preferred stock.](#)
- [Treasury stock.](#)
- [Stock splits and stock dividends.](#)
- [The statement of stockholders' equity.](#)

DISCUSSION

THE CORPORATE FORM OF ORGANIZATION

CORPORATIONS: Corporations are separate legal entities having existence separate and distinct from their owners (i.e., stockholders). In essence, they are artificial beings existing only in contemplation of law. In the United States, a corporation is typically created when one or more individuals file "articles of incorporation" with a Secretary of State in the particular home state in which they choose to become domiciled. The articles of incorporation will generally specify a number of important features about the purpose of the corporate entity and how general governance of ongoing operations will be structured. After reviewing the articles of incorporation, the Secretary of State will issue a charter (or certificate of incorporation) authorizing the corporate entity to "come into being." The persons who initiated the filing (the "incorporators") will then call a meeting to collect the shareholders' initial investment (this start-up money will be placed into the corporate accounts) in exchange for the "stock" of the corporation (the "stock" is the financial instrument evidencing a person's ownership interest in the corporation). Once the initial stock is issued, a shareholders' meeting will be convened to adopt bylaws and elect a board of directors. These directors will then appoint the corporate officers who will be responsible for commencing the operations of the business. Of course, in a small start-up venture, the initial incorporators may become the shareholders, then elect themselves to the board, and finally appoint themselves to become the officers. Which leads one to wonder why go to all the trouble of incorporating?

The reasons for incorporating can vary, but there are certain unique **advantages** of this form of organization that have led to its popularity:

Perhaps the first and most obvious advantage of the corporate form of organization is that it permits otherwise unaffiliated persons to join together in **mutual ownership** of a business entity. This objective can be accomplished in other ways like a partnership, but the corporate form of organization is arguably one of the better vehicles. Large amounts of venture capital can be drawn together from many individuals and concentrated into one entity under shared ownership.



The stock of the corporation provides a clear and unambiguous point of reference to identify who owns the business and in what proportion. Further, the democratic process associated with shareholder voting rights (typically one vote per share of stock) permits a shareholder's "say so" in selecting the board of directors to be commensurate with the number of shares held. In addition to electing the board, shareholders may vote on other matters such as selection of an independent auditor, stock option plans, and corporate mergers. The voting "ballot" is usually referred to as a "proxy."

A great feature of corporate stock is **transferability of ownership**. Corporate stock is easily transferable from one "person" to another. In this context, a "person" can be an individual or another corporation. Transferability provides liquidity to stockholders as it enables them to quickly enter or exit an ownership position in a corporate entity. And, although a corporation may become very complex (e.g., buying real estate, entering contracts, etc.), the ability of one shareholder to step out and allow a successor to take their place can be done quite simply; there is not a need for the holdings and agreements of the corporate entity to be revised.

As a corporation grows, it may bring in additional shareholders by issuing even more stock. At some point, the entity may become sufficiently large that its shares will become "listed" on a stock exchange and the shareholder group expanded to become large and dispersed. You have probably heard of an "IPO," which is the **initial public offering** of the stock of a corporation. Rules require that such IPOs be accompanied by regulatory registrations and filings, and that potential shareholders be furnished with a **prospectus** detailing corporate information. The pricing of IPOs can vary based on market conditions, and sometimes get "wild" for a hot company that seemingly everyone wants to own. **Publicly traded** (in contrast to "closely held") corporate entities are subject to a number of continuing regulatory registration and reporting requirements that are aimed at ensuring full and fair disclosure.

Another benefit of a corporation is its **perpetual existence**. A corporate entity is typically of unlimited duration enabling it to effectively outlive its shareholders. Changes in stock ownership do not cause operations to cease even when the change in ownership is brought about by the death of a shareholder. Many corporate entities are over one-hundred years old. What would cause a corporation to cease to exist? At some point, a corporation may be acquired by another and merged in with the successor. Or, a corporation may become a business failure and cease operations (typically accompanied by a request to the Secretary of State to "dissolve" the legal existence). Of course, not all dissolutions are the result of failure. Some businesses may find that liquidating operating assets and distributing substantial residual monies to the creditors and shareholders is a preferable strategy to continued operation.

Not to be overlooked in considering why a corporation is desirable is the feature of **limited liability** for stockholders. If you buy the stock of a corporation, you normally do so with the understanding that you can lose the amount of your investment, but no more. Stockholders are not liable for debts and losses of the company beyond the amount of their investment. There are exceptions to this rule. In some cases, shareholders may be called upon to sign a separate guarantee for corporate debt. And, shareholders in closely held companies can inadvertently get drawn into having to satisfy corporate debts where they commingle their personal finances with those of the company or fail to satisfy the necessary legal procedures to maintain a valid corporate existence.

Corporations are not without certain notable **disadvantages**:

Corporations in the United States are taxable entities, and their income is subject to taxation. This "income tax" is problematic as it oftentimes produces **double taxation**. This effect occurs, because when shareholders receive cash dividends on their corporate investments, they must include the dividends in their own calculation of taxable income. Thus, a dollar earned at the corporate level is reduced by corporate income taxes (at a rate that is likely about 35%); to the



extent the remaining after-tax profit is distributed to shareholders as dividends, it is again subject to taxes at the shareholder level (at a rate that will vary in the 15% to 35% range). So, as much as half or more of the profits of a dividend-paying corporation are apt to be shared with governmental entities because of this double taxation effect.

Governments are aware that this double-taxation outcome can limit corporate investment and be potentially damaging to the economic wealth of their nation. Within the United States, various measures of relief are sometimes available depending on the prevailing political climate (including "dividends received deductions" for dividends paid between affiliated companies, lower shareholder tax rates on dividends, and S-Corporation provisions that permit closely held corporations to attribute their income to the shareholders thereby avoiding one level of tax). Outside of the United States, some countries adopt "tax holidays" that permit newer companies to be exempt from income taxes, or utilize different approaches to taxing the value additive components of production by an entity.

Another burden on the corporate form of organization is *costly regulation*. Larger (usually public) companies are under scrutiny of federal (The Securities and Exchange Commission (SEC) and other public oversight bodies) and state regulatory bodies. History tells us that the absence or failure of these regulators will quickly foster an environment where rogue business persons will launch all manner of stock fraud schemes (not the least of which is inflated profits to attract and rob unsuspecting investors). Worse, these frauds quickly corrupt public confidence in stock investments and destroy wealth and opportunity for everyone. Without a willingness on the part of investors to join together via a corporate vehicle, new ideas, products, and innovations go undeveloped. Therefore, it seems almost unavoidable that governmental regulation must be a part of the corporate scene. However, the cost of compliance with such regulation is heavy indeed. Public companies must prepare and file quarterly and annual reports with the SEC, along with a myriad of other documents. And, many of these documents must be certified or subjected to independent audit. Further, requirements are in place that require companies to have strong internal controls and even ethical training. As a result, one cannot simply dismiss this regulatory cost as a nuisance; indeed, it must be considered as a potential barrier to opting to become a public company. Historic events (the stock market crash of 1929 and the Enron/WorldCom debacles of 2001 and 2002, are two USA examples of precipitating events) have been catalysts for significant legislation intended to protect public investors.

COMMON AND PREFERRED STOCK

NOT ALL STOCK IS CREATED EQUAL: Companies may issue different types of stock; notably *common stock* and *preferred stock*. Being familiar with the word preferred may lead you to conclude it is the better choice, but such is not necessarily the case. The customary features of common and preferred differ, providing some advantages and disadvantages for each. As you shall soon see, preferred stock is ordinarily in a better position for dividends and any liquidation proceeds, but it can be left out of significant opportunities for share value appreciation. Before digging into the specifics, be advised that the following discussion relates to general features, and the applicability of these general features can be modified on a company by company basis. Before investing in any company's common or preferred stock, you should carefully examine the specific provisions that might be unique to that company.

TYPICAL COMMON STOCK FEATURES:

- The right to share in a portion of dividends that are declared and issued by the company to its common shareholders.
- An option to buy a proportional part of any additional shares that may be issued by the company. This "*preemptive right*" is intended to allow a shareholder to avoid dilution by being assured a place in line to acquire a fair part of any corporate stock expansion. (Numerous companies have done away with this provision.)



- The right to vote on certain general governance matters like election of the Board of Directors, employee stock award plans, mergers, and similar major items.
- The right to share in proceeds of liquidation after all creditors and other priority claims are settled.
- The right to periodic financial reports about corporate performance.

Some companies go to the added trouble of having multiple classes of common stock -- Class A, Class B, etc. A good example is a "family business" that has grown very large and become a public company. Such situations may be accompanied by the creation of Class A stock (held by the family members) and Class B stock (held by the public), where only the Class A stock can vote. Thus, the family has raised needed capital but preserved the ability to control and direct the company. You might also find it interesting that one can be forced out (in exchange for a fair price) of a stock ownership interest; this can occur when a company is bought out by another, and most of the other shareholders (oftentimes as high as 80 to 90%) have consented to the transaction. Noncontrolling shareholders (those who hold stock in a company where another party owns more than half of the corporation) are sometimes called the "minority interest." Minority shareholders are in a treacherous position, and governing laws vary considerably in how much protection is afforded to prevent the majority from engaging in transactions and activities that disadvantage the minority.

POSSIBLE PREFERRED STOCK FEATURES:

- A preferred position for dividends. Preferred stock is paid a dividend prior to any distribution to common stockholders, and the dividend is more or less expected each period. The amount of the dividend is usually stated as a percentage of the preferred stock's "par value." Furthermore, preferred stock is frequently **cumulative**; if the annual dividend requirement cannot be satisfied, it will become a **dividend in arrears**, and all dividends in arrears must be paid before any dividends can be paid to common shareholders (in contrast to "noncumulative" where a missed dividend is not required to be made up in the future).
- The absence of voting rights.
- A preferred position in liquidation. In the event of a corporate liquidation, preferred stock is understood to be "paid-off" before common shareholders. Of course, creditors must first be satisfied before any funds will flow to either the preferred or common stockholders.
- A call feature, which means that the company can force the preferred shareholders to cash out of their position in exchange for a preagreed "call price" that is oftentimes set at a certain percentage of "par value" (e.g., **callable** at 105, would mean the company can buy back the preferred stock at 105% of its par value). You don't have to think too long to see that this call provision can effectively limit the upside value of an investment in preferred stock, no matter how attractive its dividend might appear.
- A **convertible** feature, which means that the preferred shares may be exchanged for common stock at a preagreed ratio (e.g., 3 shares of common for one share of preferred). This conversion provision can effectively provide significant upside value for an investment in preferred stock, no matter how bad its dividend might appear.
- A maturity date, at which time the preferred will be bought back by the company ("mandatory redeemable").

Even a casual review of the above features will quickly lead you to conclude that preferred has its merits and its detractions depending on how the individual features are implemented for a particular company. Obviously, every company has different financing (and tax!) considerations and will tailor its package of features to match those issues. For instance, a company can issue preferred that is much like debt (cumulative, mandatory redeemable) because a fixed periodic



payment must occur each period, with a fixed amount due at maturity. On the other hand, some preferred will behave more like common stock (noncallable, noncumulative, convertible).

WHAT IS PAR?: In the preceding discussion, there were several references to "par value." Many states require that stock have a designated par value (or in some cases "stated value"). Thus, par value is said to represent the "legal capital" of the firm. In theory, original purchasers of stock are contingently liable to the company for the difference between the issue price and par value if the stock is issued at less than par. However, as a practical matter, par values on *common stock* are set well below the issue price, negating any practical effect of this latent provision. It is not unusual to see *common stock* carry a par value of \$1 per share or even \$.01 per share. In some respects, then, par value is merely a formality. But, it does impact the accounting records, because separate accounts must be maintained for "par" and "paid in capital in excess of par."

To illustrate the issuance of par value stock, assume that Godkneckt Corporation issues 100,000 shares of \$1 par value stock for \$10 per share. The entry to record this stock issuance would be:

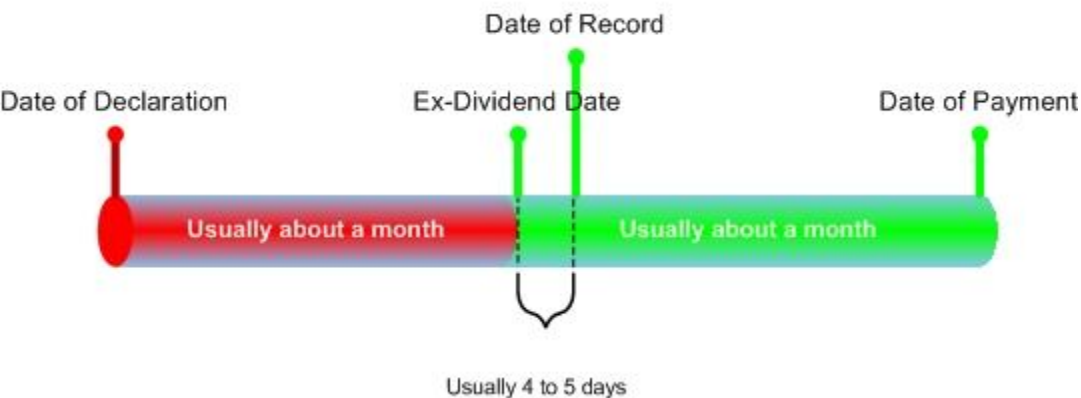
| | | | |
|--------|---|-----------|---------|
| 5-1-XX | <u>Cash</u> | 1,000,000 | |
| | <u>Common Stock</u> | | 100,000 |
| | <u>Paid in Capital in Excess of Par</u> | | 900,000 |
| | <i>To record issuance of 100,000 shares of \$1 par value common stock at \$10 per share</i> | | |

Occasionally, a corporation may issue no-par stock, which is simply recorded by debiting Cash and crediting Common Stock for the issue price. A separate Paid-in Capital in Excess of Par account is not needed.

By the way, the above entry assumed the stock was issued for cash. Sometimes, stock is issued for land or other tangible assets, in which case the above debit would be to the specific asset account (e.g., Land instead of Cash). When stock is issued for noncash assets, the amount of the entry would be based upon the fair value of the asset (or the fair value of the stock if it can be more clearly determined).

A CLOSER LOOK AT CASH DIVIDENDS: Let's begin by assuming that a company has only common shares outstanding. There is no mandatory dividend requirement, and the dividends are a matter of discretion for the Board of Directors to consider. Of course, to pay a dividend, the company must have sufficient cash and a positive balance in retained earnings (companies with a "deficit" (negative) Retained Earnings account would not pay a dividend unless it is part of a corporate liquidation action). Many companies pride themselves in having a long-standing history of regular and increasing dividends; a feature that many investors find appealing. Other companies view their objective as one of continual growth via reinvestment of all earnings; their investors seem content relying on the notion that their investment value will gradually increase due to this earnings reinvestment activity. Whatever the case, a company has no obligation to pay a dividend, and there is no "liability" for dividends until such time as they are actually declared. A "declaration" is a formal action by the Board of Directors to indicate that a dividend will be paid at some stipulated future date. On the date of declaration, the following entry is needed on the corporate accounts:

| | | | |
|--------|--------------------------|--------|--------|
| 7-1-XX | <u>Dividends</u> | 50,000 | |
| | <u>Dividends Payable</u> | | 50,000 |



| | | |
|---|--|--|
| <i>To record declaration of dividends on common stock (assumed \$0.50 per share on 100,000 shares outstanding); to be paid on September 1</i> | | |
|---|--|--|

In observing the above entry, it is imperative to note that the declaration on July 1 establishes a liability to the shareholders that is legally enforceable. Therefore, a liability is recorded on the books at the time of declaration. Recall (from much earlier chapters) that the Dividends account will directly reduce retained earnings (it is not an expense in calculating income -- it is a distribution of income)! On September 1, when the above dividends are paid, the appropriate entry is:

| | | | |
|--------|--|--------|--------|
| 9-1-XX | Dividends Payable | 50,000 | |
| | Cash | | 50,000 |
| | <i>To record payment of previously declared dividend</i> | | |

Some shareholders may sell their stock between the date of declaration and the date of payment. Who is to get the dividend? The former shareholder or the new shareholder? To resolve this question, the Board will also set a "date of record;" the dividend will be paid to whomever the owner of record is on the "date of record." In the preceding illustration, the date of record might have been set as August 1, for example. To further confuse matters, there may be a slight lag of just a few days between the time a share exchange occurs and the company records are updated. As a result, the date of record is usually slightly preceded by an **ex-dividend** date. The practical effect of this is simple: if a shareholder on the date of declaration continues to hold the stock at least through the ex-dividend date, that shareholder will get the dividend -- but if the shareholder sells the stock before the ex-dividend date, the new shareholder can expect the dividend. In the time line at right, if you were to own stock on the date of declaration, you must hold the stock at least until the "green period" to be entitled to receive payment.

THE PRESENCE OF PREFERRED STOCK: Recall that preferred dividends are expected to be paid before common dividends, and those dividends are usually a fixed amount (e.g., a flat percentage of the preferred stock's par value). In addition, recall that cumulative preferred requires that dividends that are not paid become "dividends in arrears." Dividends in arrears must also be paid before any distributions to common can occur. Another illustration will likely provide the answer to questions you may have about how these concepts are to be implemented.

To develop the illustration, let's begin by looking at the equity section of Embassy Corporation's balance sheet. You will note that this section of the balance sheet has grown considerably. A corporation's stockholders' equity (or related footnotes) should include rather detailed descriptions of the type of stock outstanding and its basic features. This will include mention of the number of shares *authorized* (permitted to be issued), *issued* (actually issued), and *outstanding* (issued minus any shares reacquired by the company). In addition, you should be aware of certain related terminology -- "**legal capital**" is the total par value (\$20,400,000 below), and "**total paid in capital**" is the legal capital plus amounts paid in excess of par values (\$56,400,000 below).

Stockholders' Equity

Capital stock:

| | | |
|--|----------------|---------------|
| Preferred stock, \$100 par value, 8%, cumulative, 500,000 shares authorized, 200,000 shares issued and outstanding | \$ 20,000,000 | |
| Common stock, \$1 par value, 2,000,000 shares authorized, 400,000 shares issued and outstanding | <u>400,000</u> | \$ 20,400,000 |

Additional paid-in capital:

| | | |
|---|-------------------|-------------------|
| Paid-in capital in excess of par -- preferred stock | \$ 1,000,000 | |
| Paid-in capital in excess of par -- common stock | <u>35,000,000</u> | <u>36,000,000</u> |

Total paid-in capital

Retained Earnings

Total stockholders' equity

In examining this stockholders' equity section, note that the par value for each class of stock is the number of shares issued multiplied by the par value per share (e.g., 200,000 shares X \$100 per share = \$20,000,000).

For Embassy Corporation, note that the preferred stock description makes it clear that the \$100 par stock is 8% cumulative. This means that each share will pay \$8 per year in dividends, and any "missed" dividends become dividends in arrears. Let us further assume that the notes to the financial statements appropriately indicate that Embassy has not managed to pay its dividends for the preceding two years. If Embassy desired to pay \$5,000,000 of total dividends during the current year, how much do you suppose would be available to the common shareholders? The answer is only \$200,000 (or \$0.50 per share for the 400,000 common shares). The reason is that the preferred stock is to receive annual dividends of \$1,600,000 (\$8 per share X 200,000 preferred shares), and three years must be paid consisting of the two years in arrears and the current year requirement (\$1,600,000 X 3 years = \$4,800,000 to preferred, and leaving only \$200,000 for common).

TREASURY STOCK

Treasury stock is the term that is used to describe shares of a company's own stock that it has reacquired. A company may buy back its own stock for any number of reasons. The most frequently cited reason is a belief by the officers and directors that the market value of the stock is unrealistically low. As such, the decision to buy back stock is seen as a way to support the stock price and utilize corporate funds to maximize the value for shareholders who choose not to sell back stock to the company. Other times, a company may buy back public shares as part of a reorganization that contemplates the company "going private" or delisting from some particular stock exchange market. Further, a company might buy back shares, and in turn issue them to employees pursuant to some employee stock award plan. And, a company might buy back stock from a dissident shareholder who is making overtures to overthrow the current board (sometimes called "greenmail" since cash is extracted from the company in exchange for shares and a "standstill" agreement with the dissident).

Whatever the reason for a treasury stock transaction, the company is to account for the shares as a purely equity transaction, and no gains and losses are reported in income (except in the case of "greenmail" where some expense may be recorded for any premiums paid to "quiet" the dissident). Procedurally, there are several ways to record the "debits" and "credits" associated

with treasury stock, and I will not belabor each such technique (see most intermediate accounting textbooks for such details). Instead, I will focus on the "cost method" as it is very direct and perfectly acceptable in each case. Under this approach, acquisitions of treasury stock are accounted for by debiting Treasury Stock and crediting Cash for the cost of the shares reacquired:

| | | | |
|--------|--|-----------|-----------|
| 4-1-X1 | <u>Treasury Stock</u> | 1,000,000 | |
| | <u>Cash</u> | | 1,000,000 |
| | <i>To record acquisition of 40,000 treasury shares at \$25 per share</i> | | |

Treasury Stock is a contra equity item. It is not reported as an asset; rather, it is subtracted from stockholders' equity. The presence of treasury shares will cause a difference between the number of shares issued and the number of shares outstanding. Below is Embassy Corporation's equity section, modified (see highlights) to reflect the treasury stock transaction portrayed by the entry.

| Stockholders' Equity | | | |
|--|--|-------------------|-------------------|
| Capital stock: | | | |
| Preferred stock, \$100 par value, 8%, cumulative, 500,000 shares authorized, 200,000 shares issued and outstanding | | \$ 20,000,000 | |
| Common stock, \$1 par value, 2,000,000 shares authorized, 400,000 shares issued, and 360,000 shares outstanding | | <u>400,000</u> | \$ 20,400,000 |
| Additional paid-in capital: | | | |
| Paid-in capital in excess of par -- preferred stock | | \$ 1,000,000 | |
| Paid-in capital in excess of par -- common stock | | <u>35,000,000</u> | <u>36,000,000</u> |
| Total paid-in capital | | | \$ |
| Retained Earnings | | | \$ |
| Less: Treasury stock, 40,000 shares at cost | | | \$ |
| Total stockholders' equity | | | \$ |

The effect of treasury stock is very simple -- cash goes down and so does total equity by the same amount. This result occurs no matter what the original issue price was for the stock. Accounting rules do not recognize gains or losses when a company *issues its own stock*, nor do they recognize gains and losses when a company *reacquires its own stock*. This may seem odd, because it is certainly different than the way you or I think about stock investments. But remember, this is not a stock investment from the company's perspective -- it is instead an expansion or contraction of its own equity.

If the treasury shares are subsequently reissued, Cash is debited for the amount received and Treasury Stock is credited for the cost of the shares sold. Any difference is debited or credited to Paid-in Capital in Excess of Par (and, in some limited cases *debited* to Retained Earnings) to bring the resulting journal entry into balance:

| | | | |
|--------|---|---------|---------|
| 7-1-X2 | Cash | 400,000 | |
| | Treasury Stock | | 250,000 |
| | Paid in Capital in Excess of Par | | 150,000 |
| | To record reissue of 10,000 treasury shares at \$40 per share | | |

STOCK SPLITS AND STOCK DIVIDENDS

STOCK SPLITS: **Stock splits** are events that increase the number of shares outstanding and reduce the par or stated value per share. For example, a two-for-one stock split would double the number of shares outstanding and halve the par value per share. Existing shareholders would see their shareholdings double in quantity, but there would be no change in the proportional ownership represented by the shares (i.e., a shareholder owning 1,000 shares out of 100,000 would then own 2,000 shares out of 200,000).

Importantly, the *total* par value of shares outstanding is not affected by a stock split (i.e., the number of shares times par value per share does not change). Therefore, no journal entry is needed to account for a stock split. A memorandum notation in the accounting records indicates the decreased par value and increased number of shares. If the *initial* equity illustration for Embassy Corporation was modified to reflect a four-for-one stock split of the common stock, the revised presentation would appear as follows (the only changes are highlighted):

| Stockholders' Equity | | | |
|--|--------------|-------------------|-------------------|
| Capital stock: | | | |
| Preferred stock, \$100 par value, 8%, cumulative, 500,000 shares authorized, 200,000 shares issued and outstanding | | \$ 20,000,000 | |
| Common stock, \$0.25 par value, 2,000,000 shares authorized, 1,600,000 shares issued and outstanding | | <u>400,000</u> | \$ 20,400,000 |
| Additional paid-in capital: | | | |
| Paid-in capital in excess of par -- preferred stock | \$ 1,000,000 | | |
| Paid-in capital in excess of par -- common stock | | <u>35,000,000</u> | <u>36,000,000</u> |
| Total paid-in capital | | | \$ |
| Retained Earnings | | | \$ |
| Total stockholders' equity | | | \$ |

By reviewing the changes, you can see that the par has been reduced from \$1.00 to \$0.25 per share, and the number of issued shares has quadrupled from 400,000 shares to 1,600,000 (be sure to note that $\$1.00 \times 400,000 = \$0.25 \times 1,600,000 = \$400,000$). None of the account balances have changes.



Given the paucity of financial statement effect, why would a company bother with a stock split? The answer is not in the financial statement impact, but in the financial markets. Since the same company is now represented by more shares, one would expect the market value per share to suffer a corresponding decline. For example, a stock that is subject to a 3-1 split should see its shares initially cut in third. But, holders of the stock will not be disappointed by this share price drop since they will each be receiving proportionately more shares; it is very important to understand that existing shareholders are getting the newly issued shares for no additional investment. The benefit to the shareholders comes about, in theory, because the split creates more attractive opportunities for other future investors to ultimately buy into the larger pool of lower priced shares. Rapidly growing companies often have share splits to keep the per share price from reaching stratospheric levels that could deter some investors. In the final analysis, you should understand that a stock split is mostly cosmetic as it does not change the underlying economics of the firm.

And, splits can come in odd proportions: 3 for 2, 5 for 4, 1,000 for 1, and so forth depending on the scenario. A reverse split (1 for 5, etc.) is also possible, and will initially be accompanied by a reduction in the number of issued shares along with a proportionate increase in share price. Reverse splits are often seen when a stock's price has dropped below a minimum threshold level for continued listing on some stock exchanges. Shareholders who suffer a reverse split are usually not too happy to see their number of shares reduced; however, they still own the same proportionate share of the company, as the reductive impact falls evenly on all shareholders. Again, the reverse split does not change the underlying economics of the firm.

STOCK DIVIDENDS: In contrast to cash dividends discussed earlier in this chapter, **stock dividends** involve the issuance of additional shares of stock to existing shareholders on a proportional basis. Stock dividends are very similar to stock splits. For example, a shareholder who owns 100 shares of stock will own 125 shares after a 25% stock dividend (essentially the same result as a 5 for 4 stock split). Importantly, all shareholders would have 25% more shares, so the percentage of the total outstanding stock owned by a specific shareholder is not increased.

Although shareholders will perceive very little difference between a stock dividend and stock split, the accounting for stock dividends is unique -- stock dividends require journal entries. Stock dividends are recorded by moving amounts from retained earnings to the paid-in capital accounts. The amount to move depends on the size of the distribution; (1) a **small stock dividend** (generally less than 20-25% of the existing shares outstanding) is accounted for at **market price** on the date of declaration, and (2) a **large stock dividend** (generally over the 20-25% range) is accounted for at **par value**.

To illustrate, assume that Childers Corporation had 1,000,000 shares of \$1 par value stock outstanding. The market price per share is \$20 on the date that a stock dividend is declared and issued:

Small Stock Dividend: Assume Childers Issues a 10% Stock Dividend

| | | | |
|----------|--|-----------|-----------|
| XX-XX-XX | <u>Retained Earnings</u> | 2,000,000 | |
| | <u>Common Stock</u> | | 100,000 |
| | <u>Paid in Capital in Excess of Par</u> | | 1,900,000 |
| | <i>To record issuance of a 10% stock dividend (1,000,000 shares X 10% X \$20 per share market price)</i> | | |

Large Stock Dividend: Assume Childers Issues a 40% Stock Dividend

| | | | |
|----------|--|---------|---------|
| XX-XX-XX | Retained Earnings | 400,000 | |
| | Common Stock | | 400,000 |
| | <i>To record issuance of a 40% stock dividend (1,000,000 shares X 40% X \$1 per share par value)</i> | | |

Additional "temporary" equity accounts might be introduced if the declaration and distribution occurred on different dates, but the final outcome after the distribution was complete would be identical to the result produced above. Those details are left for more advanced accounting courses.

Before moving on, it may seem odd that accounting rules require different treatments for stock splits, small stock dividends, and large stock dividends. There are some conceptual underpinnings for these differences, but it is primarily related to bookkeeping issues. For example, the total par value needs to correspond to the number of shares outstanding. To test your understanding, which transaction (split, small stock dividend, or large stock dividend) causes a change in total stockholders' equity? The answer is none of them; each merely rearranges existing equity in some fashion, but none of them change the bottom line total equity balance.

STATEMENT OF STOCKHOLDERS' EQUITY

REQUIRED FINANCIAL STATEMENTS: Remember that a company must present an income statement, balance sheet, statement of retained earnings, and statement of cash flows. However, it is also necessary to present additional information about changes in other equity accounts. This may be done by notes to the financial statements or other separate schedules. However, most companies will find it preferable to simply combine the required statement of retained earnings and information about changes in other equity accounts into a single [Statement of Stockholders' Equity](#). Following is an example of such a statement.

| Pepper Corporation Statement of Stockholders' Equity For the Year Ending December 31, 20X9 | | | | |
|---|----------------------------------|---|------------------------------|-----------|
| | <u>Common Stock, \$1 Par</u> | <u>Paid-in Capital in Excess of Par</u> | <u>Retained Earnings</u> | <u></u> |
| Balance on January 1 | \$ 20,000,000 | \$ 25,000,000 | \$ 11,000,000 | \$ |
| Issuance of additional shares for cash | 3,000,000 | 12,000,000 | | |
| Purchase of treasury stock | | | | |
| Net income | | | 4,000,000 | |
| Cash dividends | | | (1,500,000) | |
| Stock dividend | 1,150,000 | 4,600,000 | (5,750,000) | |
| Balance on December 31 | <u>\$ 24,150,000</u> | <u>\$ 41,600,000</u> | <u>\$ 7,750,000</u> | <u>\$</u> |

This statement does fulfill the requirement for a statement of retained earnings and additional equity account information disclosures. From the illustration, you can see that the company had several equity transactions during the year, and the retained earnings column roughly corresponds to a statement of retained earnings. In actuality, companies are apt to expand this presentation to include comparative data for multiple years and potentially include information about all other equity accounts (such as the [other comprehensive income](#) accounts you learned about in the long-term investments accounting chapter).

To close this chapter, I would encourage you to examine the above statement of stockholders' equity, and be sure you can prepare a journal entry that corresponds to Pepper's [share issuance](#), [treasury stock transaction](#), [cash dividend](#), and [stock dividend](#). You will find it helpful to review the various journal entries illustrated in this chapter as you undertake this effort. If you want to check your solution, just click on the related link.