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Note on Generally Accepted Accounting Principles

Financial accounting information is used by managers, investors, financial analysts, creditors, regulators, and even employees and customers on occasion. All of these people need to understand both the current financial status of an organization, as well as the events that caused a change in that status from some prior point in time. As such, the purpose of an accounting system is to collect, summarize, and report information concerning an organization's financial performance, and the impact of various business events on its financial status.

Financial accounting relies on a set of Generally Accepted Accounting Principles, or GAAP, to help assure financial statement readers that they see a reliable and accurate representation of the economic performance of an organization. GAAP are based on nine principles that have existed for decades. There has been, and continues to be considerable debate in the financial community about the validity and utility of these principles, and alternatives frequently are proposed. For the moment, however, the nine principles discussed in this note prevail.

Application of GAAP differs among countries. GAAP is applied through financial accounting standards. The standards in the United States differ somewhat from International financial accounting standards, and some countries use still different standards. In almost all instances, however, the principles themselves, remain the same.

PRINCIPLE #1. ENTITY

This is a simple but important principle. In financial accounting, records are kept and financial statements are prepared for the organizational entity as distinct from its owners.

PRINCIPLE #2. DUAL-ASPECT

Accounting's roots can be traced to the Italian Renaissance and the then-emerging city states. At that time, there was a need for improved record keeping, both to avoid mistakes in keeping track of financial information, and to provide merchants with better information on the financial performance of their businesses. To deal with the problem, a Franciscan monk, Fra. Luca Pacioli, devised the system of double-entry bookkeeping. Fra. Pacioli, a mathematician, reasoned that if, instead of making a single entry to the accounts each time a transaction took place, a merchant made two entries in two different places, there would be a system of checks and balances. His insight gave rise to the dual aspect principle of accounting, which underlies the balance sheet.

Since all accounting-related events result in two (sometimes more) entries to the accounts, there is a fundamental equality on a balance sheet: an entity's assets must equal the sum of its liabilities and its equity. This equality can only be preserved if two (or more) entries are made each time an accounting event occurs. An entity's assets are what it owns or has claim to; its liabilities and equity represent how it has financed these assets. Liabilities represent financing from lenders and equity represents financing from owners plus the entity's retained earnings.

PRINCIPLE #3. MONEY MEASUREMENT

Items that appear on financial statements are expressed exclusively in monetary terms. Items that can be counted must be translated into monetary terms, and anything that cannot be measured in monetary terms is excluded from the financial statements.[1]

[1] Considerable work is underway to measure and report on intangible assets, i.e., assets that cannot be measured in monetary terms, such as the skill of an entity's labor force. It is likely that some form of intangible reporting will emerge in the next decade or so. For a discussion of intangible assets, see Note on Intangible Assets (HBSP Product Number 313).

This background note was prepared by Professor David W. Young. It is intended to assist with case analyses, and not to illustrate either effective or ineffective handling of administrative situations.

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PRINCIPLE #4. GOING CONCERN

Bankruptcies are a reality in any market economy. For a variety of reasons, some organizations cannot survive the discipline of the marketplace. Their products or services may not be what consumers want, or they may not control their costs effectively, or they may be badly managed in other ways. In addition, many organizations may be merged with or acquired by other organizations.

Financial accounting essentially ignores the *possibility* of bankruptcies, mergers, or acquisitions (it does account for them once they have occurred, however). It does so by means of the *going concern principle*. According to this *principle*, an organization's financial statements are prepared with the underlying assumption that the entity will continue in existence indefinitely.

This *principle* has more powerful implications than might first be imagined. The most important of these is that a company's assets are shown at their *historical cost,*[2] and not at their market value (unless it is below cost). Similarly, a company's liabilities are shown at the amount due, not at what the vendor, bank, or other creditor might receive if the company were to go out of business.

If an entity's auditors believe that it is approaching bankruptcy, they can signal this fact to financial statement readers in their opinion letter—which precedes the audited financial statements, and contains the auditors' opinion as to whether the entity has satisfied GAAP. If the auditors believe that the going concern *principle* may be in danger of violation, their opinion letter would include a statement to that effect, known as a "going concern qualification." Similar qualifications can be included for all nine *principle*s, as well as for the many accounting standards that comprise generally accepted accounting principles.

PRINCIPLE #5. COST

Financial accounting assumes that assets are purchased for operating purposes, not so they can be liquidated (sold) to help meet current obligations. Of course, certain assets, such as merchandise inventory, are purchased with the idea that they will be resold. Ordinarily, this is not the case for fixed assets, such as equipment, however.

Thus, if a company purchased a custom-fitted delivery van for $15,000 on January 3, the amount for which it could be sold on January 4 (which probably is less less than $15,000) is irrelevant. The van will appear on the balance sheet (as part of an equipment account) at $15,000. Similarly, the inventory of a retail store is shown on its balance sheet at its cost, even though the store plans to sell it for more than that.

Thus, *the cost principle* states that, with only a few exceptions, assets are recorded at their original (or *historical)* cost rather than their market value.[3] There are three reasons for this. First, market value can be difficult to ascertain, whereas cost is not. Cost is what the organization paid for the asset, and is easily verifiable from company records. Second, even if market value were easy to ascertain, the organization would need to spend considerable time and effort to determine it for each asset each time it prepared a set of financial statements. Third, fixed assets (such as plant and equipment) will be used in the course of an organization's operations. Thus, their market value is of little relevance. Effectively, the going concern *principle* says that we will not resell our assets, but will use them until they wear out or are replaced with new ones.

PRINCIPLE #6. REALIZATION

Financial accounting focuses on the operating activities that take place in an organization, regardless of whether there were cash inflows or outflows associated with them. This is called *accrual accounting,* as distinguished from *cash accounting*(which focuses only on the checkbook). According to the realization *principle*, an entity recognizes revenue when it is *earned,* and not when the associated cash is received. *Earned* ordinarily means that the goods and/or services have been delivered to customers and there is *reasonable certainty* that the the associated cash will be collected at some point in the future.

In recognition that not all revenue will be collected, the accountants use a "bad debt" estimate (plus a contractual allowance estimate in health care) to write down that portion of its revenue that it expects it will not collect. This requires estimates, which introduce the possibility of inaccuracies.

[2] There is an exception to this rule that is beyond the scope of this note, but it is a very conservative exception.

[3] The historical-cost-versus-current-value issue is a subject of considerable debate within the accounting profession. Sound arguments can be made for the use of current value. For the moment, however, the proponents of historical cost have prevailed in the United States. International accounting standards deviate from historical cost somewhat.

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Example: *Barclays Bank*

In the early 1990s, Barclays Bank's profits were influenced significantly by bad debts. According to *The Economist,* the bank had bad debts (an estimate) of £1.55 billion in 1991, which cut its pretax profit to £533 million. *The Economist* reported that analysts were worried that Barclays' bad debt estimate was too small. It had set aside only 2.4 percent of its total loans to cover bad debts, compared to 3.0 percent for similar banks.[4]

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PRINCIPLE #7. MATCHING

According to this *principle,* once revenue has been realized, the accountants must attempt to determine the expenses the organization incurred in generating that revenue. They must, that is, *match* against the revenue for a particular period the expenses the organization incurred in generating it.

These expenses need not have been paid in cash. For example, assume a company took out a loan of $100,000 on January 1, 2005 at an interest rate of 10 percent, with the interest for 2005 due and payable on January 1, 2006. The company's 2005 financial statements would show an interest expense of $10,000 ($100,000 x 10%) even though no cash payment had been made. In effect, it had *incurred* the expense, which is all that is relevant.

PRINCIPLE #8. CONSERVATISM

In applying the realization and matching *principle*s, accountants are guided by the *conservatism principle*. According to this *principle*, revenues are recognized only when there is *reasonable certainty* that they will be collected, and expenses are considered to be incurred when there is a *reasonable possibility* that they will exist.

Application of the realization and matching *principle*s thus requires that we have some relatively clear criteria that we can use to determine when revenue has been earned and when expenses have been incurred. In general, the idea of recognizing revenue when the goods or services have been delivered works reasonably well as a guideline. The key is to ignore cash and focus entirely on the delivery of goods or services.

Matching the appropriate expenses against revenue can be somewhat tricky. One of the most difficult tasks in accounting is to determine if there has been an expense that must be matched, and, if so, how much it is. In some instances this is easy. When a retailer earns revenue from the sale of some goods, it matches that revenue with the cost of those goods when they were purchased. The result is an expense called "cost of goods sold."[5]

Clearly, the conservatism *principle* leaves much room for interpretation. At the extremes, the decisions are simple. An order for some goods is not considered to be revenue, for example, nor is the *purchase* of inventory considered to be an expense.[6] Between these extremes, however, accountants frequently must exercise considerable judgment.

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Example: Ogden Projects, Inc.

According to an article in *Business Week,* Ogden Projects, Inc., increased its stockholders' equity by 24.9 percent in 1991 by recognizing revenues in advance of when they were realized. The revenue was due in 1992 and 1993, but, as of the end of 1991, it had not been earned; indeed, the company had not even billed its customers, several municipalities. According to the article, the company's controller conceded that the practice was unusual, but argued that "there's no question we'll get paid unless the cities go bankrupt."[7]

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[4] "The Shake-up in the Barclays Boardroom," *The Economist,* April 25, 1992.

[5] Even this can be tricky, since it frequently is the case that the same kind of product in an organization's inventory may have been purchased at different times and at different prices. The organization either must specifically identify which items were sold so that it can determine their cost, or make some assumptions. Specific identification works well for large-ticket items such as automobiles. It doesn't work at all if the inventory cannot be specifically identified, such as inventory in an oil storage tank.

[6] According to the matching principle, the expense is incurred when the inventory is sold or otherwise used up. Since not all organizations sell their inventory, the accountants must determine how much of, say, a medical supply inventory has been used up during a particular accounting period. This is an expense of the period.

[7] "Burying Trash in Big Holes—on the Balance Sheet," *Business Week,* May 11, 1992.

PRINCIPLE #9. MATERIALITY

Although accountants generally pay considerable attention to the proper recording of assets, liabilities, and and equity on the balance sheet, they also ignore some items. Consider the following:

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Example: Francesca's

Francesca's, a fancy Northern Italian restaurant prepares its financial statements on a monthly basis. Each month it records the revenue it has earned from the sale of meals, and the expenses it has incurred for food, beverages, payroll, rent, and other operating activities. One such expense is broken glassware. Each month, several glasses of various types are broken.

Theoretically, Francesca's should attempt to keep track of each broken glass so that it can properly record the breakage expense as an expense each month. While doing this has the advantage of accurately recording an expense when it happens, the effort of trying to keep track of all broken glasses would be a record keeping nightmare. Instead, Francesca's keeps track of *boxes* of glasses. Each time a box is opened and the new glasses it contains are put out for use, Francesca's records this an an expense, even though technically no expense is incurred until a glass is broken.

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An approach of this sort is permitted under what accountants call the *materiality principle*. According to this *principle*, if an amount is not significant (i.e., it is *immaterial*) but entails a great deal of record keeping, a simplifying approach is taken in the name of practicality. The expensing of glasses at Francesca's is an example of this. By contrast, the accountant must make an effort to thoroughly disclose all aspects of an organization's financial statements that are of significance (i.e., that *are material)*.

In practice, the materiality *principle* can be difficult to apply since it frequently requires considerable judgment. There are no unambiguous rules to follow to determine which items are material and which are not. Because of this, different accountants may treat the same item quite differently.

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Example: Rockwell International

Several years ago, Rockwell International did not reveal the amount of losses associated with a computer-leasing activity that allegedly involved some fraud. Rockwell claimed that the losses were "immaterial." The company's accounting firm was reported as stating that losses totaling less than 10 percent of the company's $2.2 billion in shareholder equity were not material.

Although both Rockwell and its accounting firm insisted that the comment concerning materiality was taken out of context, it nevertheless highlighted the *possibility* that Rockwell did not need to disclose the reasons for any loss of $220 million or less. The problem, according to several observers, was with the vague interpretation that both the accounting profession and the courts had given materiality.[8]

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UNDERSTANDING THE CONCEPT OF DEPRECIATION

Depreciation is a frequently misunderstood accounting concept that relies on several of the above *principle*s, but most notably the cost, dual aspect, realization, and matching *principle*s. To understand it, consider the following example:

A company purchases a new piece of equipment for $1 million. It is highly specialized equipment, such that, if the company tried to resell it the day after purchasing it, the equipment's market value would likely be below its cost. Nevertheless, because of *the cost principle,* it is recorded on the balance sheet at its cost.

Assume that the company paid for the equipment in cash.[9] At the time of purchase, the company would exchange one asset (cash) for another asset (equipment). This is *the dual aspect principle* at work. So, while there was an impact on cash, there was no impact on the company's income.

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[8] Laura Saunders, "Too Little is Not Enough," *Forbes,* November 7, 1983.

[9] The company could have borrowed $1 million to finance the equipment purchase. Alternatively, it could have leased the equipment. Since the latter would be a capital lease, however, the accounting would be essentially the same as if the the company had borrowed money to finance the purchase. In neither case would the financing choice change the the way the company depreciated the equipment, so its financing mechanism is irrelevant to the depreciation discussion.

When the company uses this equipment to provide goods or services to its customers, it earns revenue. The company realizes revenue when it provides its customers with the goods or services. This is *the realization principle* at work. In neither instance is cash received immediately. Instead the company sends a bill to its customer, which increases the company's accounts receivable. Of course, the company will need to make some bad debt allowance estimates to account for the uncollectible portion of this revenue.

In the course of doing business, the equipment gradually is "used up," and its book value (as distinct from its market value) declines. The average amount of book value lost each year is known as *depreciation*. *The matching principles* requires the company to record depreciation as the expense each year of using its equipment. In effect, the company is matching the expense of using up the equipment against the revenue it is earning from providing the goods and services.

After several years, the equipment will become "fully depreciated," and will be removed from the company's balance sheet. In the meantime, it remains on the balance sheet at its cost less the amount of depreciation that has accumulated, i.e., its book value. Thus, even though no cash outflows take place following the purchase of the equipment, depreciation shows up on the company's income statement as an expense of doing business.

Economic Life and Residual Value

Unlike inventory, where one can physically count what was used up to derive the associated expense, the amount of the equipment that was "used up" during an accounting period cannot be determined with much precision. Instead, the computation of depreciation expense relies on two estimates: economic life and residual value.

Economic Life. The time period over which the equipment depreciates is known as its *economic life,* or *service life,* which is not always the same as its *physical life*. As technology changes, for example, the asset may become obsolete, and will need to be replaced if the company is to remain competitive. When this happens, the company may be able to find a buyer for the obsolete equipment. Since the company's accountants do not know the true economic life, they must estimate it.

Residual Value. If the company can sell its old equipment at some time in the future, the equipment has what is called *residual value*. Since, at the time of purchase, the accountants do not know what the residual value will be when they sell the equipment, they must estimate it.

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Example: *Chambers Development Company*

According to an article in *Business Week,* Chambers Development Company improved its net income considerably by depreciating its landfills for much longer than their usual life. "Nobody is certain…how long a landfill takes to fill up with trash. That gives accountants plenty of wiggle room in deciding how long to allow a company to depreciate landfills. The longer the period, the smaller the hit to annual earnings." When Chambers re-computed its annual earnings based on changes to its estimated economic life for landfills, plus some other changes to what the article called "aggressive interpretations of accounting rules," its 1991 earnings dropped from 83¢ per share to only 3¢ per share. The company's stock price fell by more than half in a single day.[10]

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Making the Computations

For simplicity, let's assume that the $1 million piece of equipment has an economic life of 10 years and no residual value. On average, then, it will depreciate at the rate $100,000 a year ($1,000,000 ÷ 10). The company's profit before tax will fall by this amount each year. Of course, the company expects that the revenue it earns from providing the goods and services will exceed this amount plus all other expenses associated with the goods and services (such as employee wages).

At the end of the first year of using the equipment, the company's balance sheet would show the equipment at its book value of $900,000 ($1,000,000 minus the $100,000 in depreciation). This

[10] "Burying Trash in Big Holes—on the Balance Sheet," *Business Week,* May 11, 1992.

may bear little relationship to its market value. Nevertheless, each year, the accountants would decrease the book value by another $100,000. Importantly, this $100,000 expense each year is a non-cash expense. Indeed, depreciation is *always* a non-cash expense.

Making similar computations with residual value included is only slightly more complicated. Assume, we believe that the equipment can be sold for $50,000 at the end of its 10 year economic life. We then make the depreciation computation as follows:

Purchase price	$1,000,000
Less residual value	50,000
Equals amount to be depreciated	$950,000
Divide by economic life	10 years
Equals annual depreciation	$95,000

Effectively, this approach first calculates the *net cost* of the piece of equipment, i.e. its purchase price less what we expect to sell it for at the end of its economic life. The accountants then compute the annual depreciation expense using the net cost in conjunction with the estimated economic life. Again, remember that the economic life (ten years in this instance) is not necessarily the *physical life* of the equipment. As discussed above, economic life frequently will differ from physical life because of changes in technology that render a piece of equipment obsolete even though it is in relatively good condition.

Some Caveats

There are several caveats that should be borne in mind with regard to depreciation:

1. The depreciation expense is only an estimate, and depends on projections of the economic life and the residual value, both of which might be quite inaccurate.

2. The annual depreciation expense is an average, yet the equipment might lose a great deal of its value in the first year or two of its life, and less in later years. Consider, for example, the case of an automobile, which loses about 25 percent of its value the moment it leaves the dealer's showroom.[11]

3. Some assets (like buildings) actually *appreciate* while they are being depreciated.

4. Because of the first three points above, the book value of an asset frequently bears little if any relationship to the asset's "market value," i.e. the amount for which we can sell it. Nevertheless, *the cost principle* requires that it be recorded on the balance sheet at its book value.

[11] The use of *accelerated depreciation* helps to recognize this fact. However, accelerated depreciation is more of a tax-saving incentive than an attempt to match the depreciation expense to the actual loss of an asset's value.