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# UNDERSTANDING BASIC FINANCIAL STATEMENTS

Under generally accepted accounting principles (GAAP), companies report their financial activities using four basic financial statements:

1. The *balance sheet* presents in summary form, as of a specific date, the assets owned by the company, the liabilities owed by the company to its suppliers and to lenders who have provided funds for the business, and the accumulated funds the owners of the enterprise have invested and left with the business to cover its operating needs.
2. The *income statement* summarizes those transactions that produced revenue for the business as a result of selling its products (or its services) during a period and those transactions that resulted in expenses for the business. The difference between aggregate revenue and aggregate expenses during a specific period is the net income (or loss) the business earned, also called profit or "the bottom line."
3. The *statement of owners' equity* summarizes the major transactions during a specific period that affected the owners' interests in the company, including the net income the enterprise earned and the amount of those earnings that the owners elected to distribute to themselves.
4. The *statement of cash flows* summarizes the sources of the company's cash funds during the period and the uses the company made of those funds.

This note describes the first three of those statements and illustrates some of the ways they are used.

## The Balance Sheet

The purpose of a balance sheet is to present, as of a particular point in time, the kinds of resources available for use by the enterprise and the sources the company used to obtain those resources. Financial people refer to those resources as *assets*, and they refer to the two possible sources as *equity* (amounts provided by owners) and *liabilities* (amounts provided by creditors).

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This technical note, which was prepared by Brandt Allen, Professor of Business Administration, is an updated version of a technical note (UVA-C-2020) that was originally prepared by Robert J. Sack, Professor Emeritus. 

1. *Assets* are tangible or intangible resources that can be measured in dollars, which are owned by the company and can be expected to provide future economic benefits to the company.
2. *Liabilities* are the dollar measures of the company's obligations to repay monies loaned to it, to pay for goods or services it has received, or to fulfill commitments it has made.
3. *Owners' equity* represents the dollar measure of the owners' investment in the company. Owners can invest directly in a company by exchanging cash or other assets for shares of stock, and they can invest indirectly by allowing the company to retain some of the earnings that would otherwise be paid out to them.

The relationship between assets (*A*), liabilities (*L*), and owners' equity (*OE*) is the foundation of accounting. This fundamental relationship is expressed mathematically as follows:

$$\boxed{A = L + OE}$$

It is important to maintain this concept firmly in mind: the assets of a company will always equal the sum of its liabilities and owners' equity. The equation must balance, because in accounting, by definition, every resource has a source.

Those who are more spatially oriented may picture the balance sheet as a box with three compartments: the two right-hand compartments, in total, always equal the left-hand box, and of course the reverse is also true.

<table>
<tr><td rowspan="2">A<br>S<br>S<br>E<br>T<br>S</td><td>L<br>I<br>A<br>B.</td></tr>
<tr><td>OWNERS'<br>EQUITY</td></tr>
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The basic accounting equation is the basis for the balance sheet: the balance sheet presents the company's assets in contrast to its liabilities and owners' equity.

The balance sheet, in summary form, for Merck & Co., Inc. and Subsidiaries (Merck) for 2011 is shown in **Table 1**:

Table 1.
Merck Balance Sheet (millions of U.S. dollars).
December 31, 2011

| Assets | | Liabilities | |
|---|---|---|---|
| Current Assets | | Current Liabilities, payable to: | |
| Cash and near cash | $ 14,972 | Suppliers | $ 2,462 |
| Due from customers | 8,261 | Employees and others | 9,731 |
| Inventories | 6,254 | Tax authorities | 781 |
| Other | 3,694 | Debt holders | 1,990 |
| Total current assets | 33,181 | Shareholders | 1,281 |
| | | Total current liabilities | 16,245 |
| Investments | 3,458 | | |
| Plant and equipment | 16,297 | Long-term debt | 15,525 |
| Goodwill and other intangibles | 52,192 | Deferred taxes and other | 16,415 |
| Total Assets | $ 105,128 | Total Liabilities | 48,185 |
| | | | |
| | | Owners' Equity | |
| | | Stock issued | $ 42,451 |
| | | Retained earnings | 38,990 |
| | | Other | (3,132) |
| | | Stock bought back | (23,792) |
| | | Merck Shareholders' Equity | 54,517 |
| | | Minority Shareholders' Equity | 2,426 |
| | | Total Equity | 56,943 |
| | | Total Liabilities and Equity | $ 105,128 |

Several aspects of this balance sheet are worth noting. First, as we would expect, the aggregate assets equal the aggregate liabilities and owners' equity. Based on this balance sheet, we know what financial assets the company had at its disposal, and we know where the company went to fund the acquisition of those assets.

Second, the balance sheet reports assets, liabilities, and owners' equity as of a specific date. Businesses are dynamic, always buying and selling merchandise, incurring and paying obligations. A balance sheet stops all transactions for just a moment and gives us a financial status report of the business at one point in its life. Here, the balance sheet is prepared as of December 31, 2011.

The third thing worth noting about this balance sheet (and indeed about all balance sheets) is that the assets and the liabilities are listed in order of their liquidity—the order in which assets are likely to be converted to cash or in which liabilities are likely to demand cash. We will say more about liquidity after we have described the individual assets and liabilities in detail.

**Assets explained**

The first asset listed in our hypothetical balance sheet is *cash*. That caption is a bit more complicated than it appears to be, however. The $14,972 million represents the balances on deposit at the company's banks. It also includes excess cash, beyond the needs of day-to-day operations, that has been invested on a very short-term, very secure basis.

*Due from customers*, often referred to as *accounts receivable* or *trade receivables*, represents the amounts owed to the company by customers who purchased merchandise but who had not, as of December 31, paid for those purchases. A large portion of all commercial sales are credit sales where the buyer agrees to pay for the purchases within 30, 60, or 90 days. Under GAAP, using accrual accounting, the accounts receivable due from customers are recognized as assets. Accounts receivable are recorded at the amount of cash the company expects to receive as a result of those charge sales. It is adjusted down by what they do not expect to collect.

*Inventory* is the aggregate cost of the raw materials, work-in-process, and finished goods owned by the company. Under GAAP, *inventory* includes all the inventory the company owns—that is, all the inventory for which it has paid or promised to pay. Note that *inventory* is recorded at its cost, that is, at the price the company paid (or promised to pay) to its suppliers plus all the costs incurred in producing its finished products—including the costs of products in production. It may be adjusted down by the amount of inventory judged to be unusable or unsalable. The difference between the cost of the inventory and its expected sales price is an opportunity for profit for the company, but under GAAP, it remains an unrecognized opportunity until the products are actually sold.

*Investments* typically represents the company's partial ownership of other firms. Merck may have purchased some shares in other firms to help build relationships with important suppliers and customers.

*Plant and equipment* is the unallocated cost of the land, buildings, equipment, and construction in progress. These costs are allocated to products during production or are expensed (depreciated) over time as these assets are used up. Typically, land continues to be carried at cost and does not depreciate. The others are shown net of costs already expensed. For example, Merck originally spent $32,473 million on the plant and equipment it currently owns; $16,176 million of that cost has already been expensed, leaving a "book value" of $16,297. Of course, unless all these assets were to be sold, no one knows how much they might actually be "worth."

*Goodwill* is the premium over the value of assets and liabilities paid when Merck acquired other companies. Such premiums are common when the projected future earnings and cash flows of the acquired firm exceed the net book value of that firm.

**Liabilities explained**

*Payable to suppliers* or *accounts payable* represents the amounts owed to suppliers for merchandise the company purchased on credit and has not yet paid for. Under accrual accounting, the company records its inventory as an asset just as soon as it owns it, usually when the merchandise is received. Because the balance sheet must balance ($A = L + OE$), the company simultaneously records the liability it then owes to the supplier.

*Payable to employees and others* represents the amounts owed by the firm for services rendered. Most likely, the company's employees are paid weekly, and the suppliers are paid once a month. It would be unusual if the balance sheet were prepared exactly at the time when all the company's obligations have been paid, and so the balance sheet reflects the obligation for services since the last payment date. Under accrual accounting, the balance sheet must reflect all obligations owed as of the date of the statement, even if those amounts are not immediately payable. Preparation of the balance sheet may require some estimates of the amount of time worked by employees since the last payday, the amount of electricity used since the last billing, and so forth. Using that same logic, *taxes owed* represents the amount the firm estimates will be payable to the federal and state authorities when the tax returns for the period are completed.

*Payable to debt holders* is the debt that must be repaid to lenders over the next 12 months. The remainder of borrowed funds that must be repaid beyond the one-year period appears as *long-term debt.*

*Payable to shareholders* are the dividends on stock that were promised or declared by the company but that have yet to be paid in cash.

*Long-term debt* is the outstanding principal of the amount borrowed from a financial institution to provide funds for the operations of the business. The other liabilities we have discussed are simply the results of timing: they are liabilities because the entity obtained merchandise or used services before it got around to paying for them. *Payable to debt holders and long-term debt* are liabilities because the entity intentionally incurred the obligation by borrowing cash and promising to pay it back at a certain future date.

**Liquidity**

Under GAAP, liabilities that will require the disbursement of cash within the next year are grouped separately and referred to as *current liabilities*. Similarly, assets that are expected to be used in the business and converted to cash during the next year are grouped separately and referred to as *current assets*. The difference between the two is referred to as *net current assets* or *working capital* and is an important measure of the entity's ability to meet its obligations as they come due. The relationship between current assets and current liabilities can also be expressed as a *current ratio* (current assets/current liabilities). A company with a high current ratio is said to be *liquid* because it has the ability to liquidate its obligations; conversely, a company with negative net current assets is said to be illiquid, for obvious reasons.

**Owners' equity**

*Owners' equity* includes the amounts that have been received from stockholders in exchange for shares of stock, the amount of profit the entity has earned for stockholders that has not yet been paid out to them, and some miscellaneous items, together with the amounts paid to buy back the company's stock from their owners.

Note: Merck's common stock is stated as $0.50 par value per share. Today, par value for U.S.-based corporations is largely a historical artifact. When a company sells new par value shares, the excess of the selling price over the "par value" goes to another equity account such as "Paid-in capital." Often, the two are combined into a single account called *common stock*, which actually represents what the new owners paid for the new shares.

Applying the laws of algebra to our fundamental accounting equation ($A = L + OE$), we can see that owners' equity is also equal to *net assets* or *net worth* ($OE = A - L$). Businesspeople use the terms net assets or net worth as a shorthand way of describing the assets of the business that might be available for stockholders after the requirements of creditors have been met.

We are dealing with an important concept here, which needs to be emphasized and restated. During the year, a company will enter into many transactions, some of which increase both assets and liabilities (borrowing cash from a bank) and some of which substitute one asset for another (purchasing equipment for cash), and so forth. Those transactions that affect only assets and liabilities change the makeup of the balance sheet but do not change owners' equity—or the company's net assets. Those transactions that do affect owners' equity (and net assets) are of two types: either between the company and its owners (equity transactions) or between the company and third parties (income transactions). The income transactions with third parties are obviously critical to a company's success, and so GAAP requires a separate summary of those transactions in a separate financial statement—the income statement.

## The Income Statement

The balance sheet presents a company's assets, liabilities, and owners' equity at a particular point in time. In contrast, the *income statement* presents the results of a flow of transactions (the income-generating transactions) over a period of time. The income statement shows the revenues earned and expenses incurred by the company during a period of operations. In short, the income statement provides the details of those third-party transactions that resulted in an increase or decrease in owners' equity (and net assets). For Merck, the 2011 income statement is shown in **Table 2**:

Table 2.
Merck Income Statement (millions of U.S. dollars)
Year ended December 31, 2011

| | | |
|---|---|---|
| Sales | $ | 48,047 |
| Costs and Expenses: | | |
| Materials and production | | 16,871 |
| Marketing and admin | | 13,733 |
| R&D | | 8,467 |
| Other | | 1,642 |
| | | 40,713 |
| Income before taxes | | 7,334 |
| Income taxes | | 942 |
| Net income | | 6,392 |
| Net income—minority interests | | 120 |
| Net income—Merck shareholders | $ | 6,272 |
| Basic earnings per share | $ | 2.04 |

**Revenues explained**

*Revenues* result from the company's sales of products or services, and they result in increases in owners' equity. Remember: an increase in owners' equity must result in an increase in net assets ($A – L$), and the reverse is also true. In fact, revenues almost always result in an increase in owners' equity and an increase in cash or accounts receivable from customers.

Revenue is recognized when the selling company has completed its requirements under its agreement with the buyer and has received a commitment for payment from the buyer. Typically, the seller fulfills its share of the buyer–seller agreement by delivering the goods ordered or by providing the services requested. The selling company generally delivers goods only to buyers who pay on delivery or have established such creditworthiness that the seller has a reasonable expectation of payment. This point is so important that it is worth restating: the flow of revenues depends on the seller's completion of the sales agreement and does not depend on the flow of cash.

**Costs and expenses**

The goods that a company sells or the services it provides almost always cost the selling company something. In the case of Merck, the company ordered merchandise from suppliers and the company paid (or agreed to pay) an amount that we will call *cost*. When that merchandise is sold to a customer, it will be sold at the sales price. In accounting, the cost of the merchandise sold is matched against its sales price, and the difference is called *gross margin*. The sale (increase in equity) and the cost of the sale (decrease in equity) are always recorded at the same time, resulting in the net increase in owners' equity. The *cost of goods sold* is usually reported as a separate item on an income statement—separate from the other expenses of doing business—

because the derived gross margin is an important measure of management's ability to obtain an adequate price for the merchandise it sells. Merck listed *cost of goods sold* as *materials and production* and included them with other costs without calculating the gross margin.

To stay in business and generate revenues, a company will incur some *operating expenses*. Under accrual accounting, operating expenses are recognized at the time the company incurs the obligation to pay them, regardless of when the cash payment is required. Looking at Merck, we see that the company had expenses for *marketing and admin*, *R&D*, and *other*. The company recorded those expenses at the time it used those goods or services. As of the end of the year, we know the company has paid for some of them, but we know that it has not paid for all of them, because the balance sheet reflected some remaining liabilities owed.

In addition to the expenses actually incurred during the year, companies include in their operating expenses an allocated share of the cost of equipment and other long-lived assets purchased in prior years. In the discussion of the balance sheet, we pointed out that long-lived assets are reported at "unallocated cost," and we observed that the periodic reduction in that cost served to reduce owners' equity. The amount of that cost allocation appears in the income statement as an operating expense. This process of allocation is commonly referred to as *depreciation*.

Included in other costs and expenses for Merck in 2011 were costs for restructuring such as closing a product line, factory, or subsidiary and such things as income from partially owned companies (called affiliates) and interest paid or earned.

The amount of *income taxes* to be reported as an expense for a period is determined the same way any other expense is—some of the taxes a company is liable for are incurred and paid in the same period and are recorded as an expense at that time; some of the taxes a company becomes liable for during a period are not payable until a tax return is prepared, sometime after the end of the reporting period. If the company became liable for the tax during the accounting period or if the tax was attributable to operations of the period, it should be recognized as an expense of that period regardless of when the taxes are payable.

Income taxes are usually reported as a separate line-item expense, because many people believe that *income before taxes* is an important measure of a company's performance; it measures management's success in pricing products and controlling costs. While taxes are clearly an expense of doing business, the amount of taxes a company incurs is not always subject to management control. *Net income* is the final after-tax measure of a company's performance and reflects the difference between all revenues and all costs and expenses. Net income represents the increase in owners' equity during the period that was attributable to the operations of the company.

Most income statements include a figure for *earnings per share* (EPS) because it is an important statistic in the financial community. One thing analysts do to evaluate stock prices is to compare a company's EPS with the current price per share. Stock that sells at $12 per share and has earned $1.50 per share in its most recent year is said to have a price/earnings (P/E) ratio of 8. The P/E ratio is one of the statistics quoted in the daily transcripts of stock transactions in the financial press. EPS is calculated by dividing net income for the year by the weighted-average number of shares outstanding during the period.

## The Statement of Changes in Owners' Equity

The third basic financial statement required by GAAP is the statement of changes in owners' equity. The income statement details the changes in owners' equity as a result of company operations—its transactions with third parties. This third financial statement simply provides details of all other changes in owners' equity accounts resulting from transactions between the company and its owners. For example, consider Merck's 2011 statement in **Table 3**:

Table 3.
Merck Statement of Equity (millions of U.S. dollars)
Year ended December 31, 2011

| | Common Stock | Retained Earnings | Other | Stock Bought Back | Minority Interests | Total |
|---|---|---|---|---|---|---|
| Balance 12/31/2010 | $ 42,489 | $ 37,536 | $ (3,216) | $ (22,433) | $ 2,429 | $ 56,805 |
| Net Income—Merck shareholders | | 6,272 | | | | 6,272 |
| Other | | | 84 | | | 84 |
| Comprehensive income | | | | | | - |
| Cash dividends declared | | (4,818) | | | | (4,818) |
| Stock bought back | | | | (1,921) | | (1,921) |
| Other | (38) | | | 562 | (3) | 521 |
| Balance 12/31/2011 | $ 42,451 | $ 38,990 | $ (3,132) | $ (23,792) | $ 2,426 | $ 56,943 |

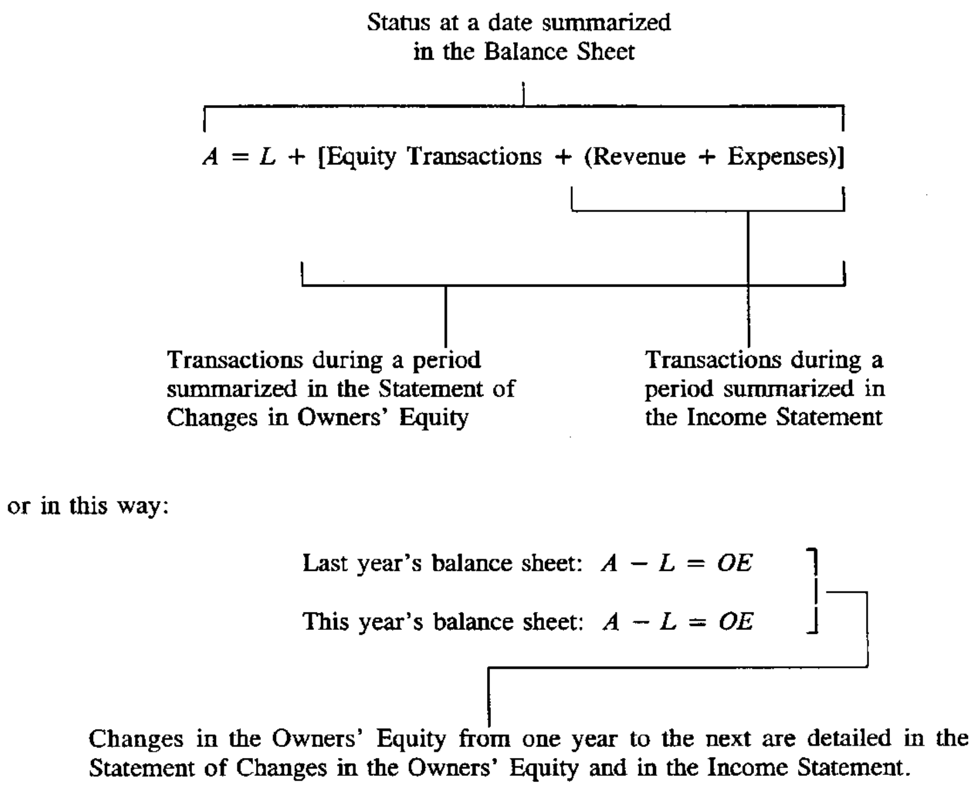
You will observe that *dividends* are not included as an expense of the business, nor are they considered in the measurement of the company's net income for the year. Dividends are a distribution of a portion of the company's income to stockholders. To the extent that the income for the period is *not* distributed as dividends, it has the same effect as if the owners had invested that amount of new funds. As noted in our discussion of the balance sheet, the income that is not paid out as dividends is referred to as *retained earnings*—literally, earnings of the business retained for use in the business.

Note that *retained earnings* increased by the amount of *net income* to Merck shareholders and decreased by the dividends declared or promised to those shareholders. Also, Merck bought back $1,921 million of its outstanding stock and also used $562 million for other purposes—perhaps for the exercise of stock options or acquisitions or both.

## The Three Statements Are Related

It follows from the logic of our basic equation that the three statements are interrelated. It may be helpful to visualize that relationship as shown in **Figure 1**:

Figure 1. Relationships among financial statements.




Source: Created by case writer.

## Using the Basic Financial Statements

Accounting is a language, a communications device, and therefore is not an end in itself. Thus, accounting reports are not the end of the measurement and evaluation process. One of the primary objectives of this note is to help you develop the ability to interpret financial statements and draw some conclusions from the numbers. As a basis for beginning that learning process, consider the following suggestions:

- Normally, the absolute numbers in a financial statement have little meaning in themselves. The real information in a set of financial statements will be found in an analysis of the relationship of one number to another. For example, the fact that Merck owns $6,254 million in inventory is not by itself a meaningful statistic. It is much more useful to know, however, that the company's inventory December 31, 2011, is about 37% of the cost of goods sold (materials and production) during the year, which suggests that the company owns about a 135-day supply of inventory.

- The relationship between numbers within one year's financial statements is interesting, but a comparison of those numbers with those from the prior years is even more useful. For their external reporting, most companies provide data for the current year and for one or two prior years so the reader can put the current results in historical context. Comparison of results from year to year may indicate *trends* and thereby highlight problems and opportunities. Also, an analysis of trends will help the reader estimate the results that might be expected, if trends continue, for the forthcoming year.
- In addition to comparing a company's performance year to year, one may usefully compare the financial results of companies in the same industry. Comparing absolute numbers among companies will tell the reader about size relationships, but comparing percentages will often be more meaningful.