ANSWERS TO END-OF-CHAPTER QUESTIONS

6-1

a. The annual report is a report issued annually by a corporation to its stockholders. It contains basic financial statements, as well as management's opinion of the past year's operations and the firm's future prospects. A firm's balance sheet is a statement of the firm's financial position at a specific point in time. It specifically lists the firm's assets on the left-hand side of the balance sheet, while the right-hand side shows its liabilities and equity, or the claims against these assets. An income statement is a statement summarizing the firm's revenues and expenses over an accounting period. Net sales are shown at the top of each statement, after which various costs, including income taxes, are subtracted to obtain the net income available to common stockholders. The bottom of the statement reports earnings and dividends per share.

b. Common Stockholders' Equity (Net Worth) is the capital supplied by common stockholders—capital stock, paid-in capital, retained earnings, and, occasionally, certain reserves. Paid-in capital is the difference between the stock's par value and what stockholders paid when they bought newly issued shares. Retained earnings is the portion of the firm's earnings that have been saved rather than paid out as dividends.

c. The statement of retained earnings shows how much of the firm's earnings were retained in the business rather than paid out in dividends. Note that retained earnings represents a claim against assets, not assets per se. Firms retain earnings primarily to expand the business, not to accumulate cash in a bank account. The statement of cash flows reports the impact of a firm's operating, investing, and financing activities on cash flows over an accounting period.

d. Depreciation is a non-cash charge against tangible assets, such as buildings or machines. It is taken for the purpose of showing an asset's estimated dollar cost of the capital equipment used up in the production process. Amortization is a non-cash charge against intangible assets, such as goodwill. EBITDA is earnings before interest, taxes, depreciation, and amortization.

e. Operating current assets are the current assets used to support operations, such as cash, accounts receivable, and inventory. It does not include short-term investments. Operating current liabilities are the current liabilities that are a natural consequence of the firm's operations, such as accounts payable and accruals. It does not include notes payable or any other short-term debt that charges interest. Net operating working capital is operating current minus operating current liabilities.
Operating capital is the sum of net operating working capital and operating long-term assets, such as net plant and equipment. Operating capital also is equal to the net amount of capital raised from investors. This is the amount of interest-bearing debt plus preferred stock plus common equity minus short-term investments.

f. Accounting profit is a firm's net income as reported on its income statement. Net cash flow, as opposed to accounting net income, is the sum of net income plus non-cash adjustments. Operating cash is defined as the difference between sales revenues and cash operating expenses, after taxes on operating income. NOPAT, net operating profit after taxes, is the amount of profit a company would generate if it had no debt and no financial assets. Free cash flow is the cash flow actually available for distribution to investors after the company has made all investments in fixed assets and working capital necessary to sustain ongoing operations.

g. Market value added is the difference between the market value of the firm (i.e., the sum of the market value of common equity, the market value of debt, and the market value of preferred stock) and the book value of the firm's common equity, debt, and preferred stock. If the book values of debt and preferred stock are equal to their market values, then MVA is also equal to the difference between the market value of equity and the amount of equity capital that investors supplied. Economic value added represents the residual income that remains after the cost of all capital, including equity capital, has been deducted.

h. A progressive tax means the higher one's income, the larger the percentage paid in taxes. Taxable income is defined as gross income less a set of exemptions and deductions which are spelled out in the instructions to the tax forms individuals must file.

i. Marginal tax rate is defined as the tax rate on the last unit of income. Average tax rate is calculated by taking the total amount of tax paid divided by taxable income.

j. Bracket creep is a situation that occurs when progressive tax rates combine with inflation to cause a greater portion of each taxpayer's real income to be paid as taxes.

k. Capital gain (loss) is the profit (loss) from the sale of a capital asset for more (less) than its purchase price.

l. Ordinary corporate operating losses can be carried backward for 2 years or forward for 20 years to offset taxable income in a given year.

m. Improper accumulation is the retention of earnings by a business for the purpose of enabling stockholders to avoid personal income taxes on dividends.
n. An S corporation is a small corporation which, under Subchapter S of the Internal Revenue Code, elects to be taxed as a proprietorship or a partnership yet retains limited liability and other benefits of the corporate form of organization.

6-2 The four financial statements contained in most annual reports are the balance sheet, income statement, statement of retained earnings, and statement of cash flows.

6-3 No, because the $20 million of retained earnings would probably not be held in cash. The retained earnings figure represents the reinvestment of earnings by the firm. Consequently, the $20 million would be an investment in all of the firm's assets.

6-4 The balance sheet shows the firm's financial position on a specific date, for example, December 31, 2001. It shows each account balance at that particular point in time. For example, the cash account shown on the balance sheet would represent the cash the firm has on hand and in the bank on December 31, 2001. The income statement, on the other hand, reports on the firm's operations over a period of time, for example, over the last 12 months. It reports revenues and expenses that the firm has incurred over that particular time period. For example, the sales figures reported on the income statement for the period ending December 31, 2001, would represent the firm's sales over the period from January 1, 2001, through December 31, 2001, not just sales for December 31, 2001.

6-5 The emphasis in accounting is on the determination of accounting income, or net income, while the emphasis in finance is on net cash flow. Net cash flow is the actual net cash that a firm generates during some specified period. The value of an asset (or firm) is determined by the cash flows generated. Cash is necessary to purchase assets to continue operations and to pay dividends. Thus, financial managers should strive to maximize cash flows available to investors over the long run.

Although companies with relatively high accounting profits generally have a relatively high cash flow, the relationship is not precise. A business's net cash flow generally differs from net income because some of the expenses and revenues listed on the income statement are not paid out or received in cash during the year. The relationship between net cash flow and net income can be expressed as:

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\text{Net cash flow} = \text{Net income} + \text{Non-cash charges} - \text{Non-cash revenues}.
\]

The primary example of non-cash charges is depreciation. This item reduces net income but is not paid out in cash, so we add it back to net income when calculating net cash flow. Likewise, some revenues may not be collected in cash during the year, and these items must be subtracted from net income when calculating net cash flow. Typically, though, depreciation represents the largest non-cash item, and other items generally not to zero. Therefore, unless otherwise indicated, we will assume that non-cash items other than depreciation sum to zero. Given this assumption, net cash flow is equal to net income plus depreciation.
Operating cash flow arises from normal, ongoing operations, whereas net cash flow reflects both operating and financing decisions. Thus, operating cash flow is defined as the difference between sales revenues and operating expenses paid, after taxes on operating income. Operating cash flow can be calculated as follows:

Operating cash flow = Operating income \( (1 - T) \) + Depreciation.

Note that net cash flow also can be calculated as follows:

Net cash flow = Operating cash flow - (Interest charges) \( (1 - T) \).

Accountants translate physical quantities into numbers when they construct the financial statements. The numbers shown on balance sheets generally represent historical costs. When examining a set of financial statements, one should keep in mind the physical reality that lies behind the numbers, and the fact that the translation from physical assets to numbers is far from precise.

Investors (both debt and equity investors) use financial statements to make intelligent decisions about what firms to invest in, managers need financial statements to operate their businesses, and taxing authorities need them to assess taxes.

Operating capital is the amount of interest bearing debt, preferred stock, and common equity used to acquire the company's net operating assets. Without this capital a firm cannot exist, as there is no source of funds with which to finance operations.

NOPAT is the amount of net income a company would generate if it had no debt and held no financial assets. NOPAT is a better measure of the performance of a company's operations because debt lowers income. In order to get a true reflection of a company's operating performance, one would want to take out debt to get a clearer picture of the situation.

Free cash flow is the cash flow actually available for distribution to investors after the company has made all the investments in fixed assets and working capital necessary to sustain ongoing operations. It is the most important measure of cash flows because it shows the exact amount available to all investors.

There are two principal ways that the tax code discourages corporations from paying high dividends to their shareholders. First, since corporations pay dividends out of earnings that have already been taxed, there is double taxation of corporate income—income is first taxed at the corporate rate, and when what is left is paid out as dividends, it is taxed again at the personal rate. Second, since capital gains are taxed only when they are received, the tax laws favor retention of earnings for an investor who doesn't need current income. In addition, capital gains are taxed at a maximum rate of 25 percent, so for taxpayers in the high tax brackets the tax law again favors retention of earnings.
6-1 NI = $3,000,000; EBIT = $6,000,000; T = 40%; I = ?

Need to set up an income statement and work from the bottom up.

\[
\begin{align*}
\text{EBIT} & = 6,000,000 \\
\text{Interest} & = 1,000,000 \\
\text{EBT} & = 5,000,000 \\
\text{Taxes (40\%)} & = 2,000,000 \\
\text{NI} & = 3,000,000
\end{align*}
\]

\[
\text{EBIT} - \text{EBT} = \frac{5,000,000}{1 - 0.4} = 0.6
\]

\[
\text{Interest} = \text{EBIT} - \text{EBT} = 6,000,000 - 0.6 = 5,000,000 = 1,000,000.
\]

6-2 NI = $3,100,000; DEP = $500,000
NCF = NI + DEP = $3,100,000 + $500,000 = $3,600,000.

6-3 Corporate yield = 9%; T = 36%
AT yield = 9%(1 - T)
= 9%(0.64) = 5.76%.

6-4 Married Taxable Income = $97,000. Federal taxes = ?
Taxes = $6,577.5 + ($97,000 - $43,850)0.28
= $6,577.5 + ($53,150)0.28
= $21,459.3.

6-5 Corporate bond yields 8%. Municipal bond yields 6%.
Equivalent pretax yield = \( \frac{\text{yield on muni}}{1 - T} \)
\[
\begin{align*}
8\% & = \frac{6\%}{1 - T} \\
0.08 - 0.08T & = 0.06 \\
0.08T & = 0.012 \\
T & = 25\%.
\end{align*}
\]

6-6 Income $385,000
Less: Interest deduction (30,000)
Plus: Dividends received\* 4,500
Taxable Income $359,500

\*For a corporation, 70% of dividends received are excluded from taxes; therefore, taxable dividends are calculated as $15,000(1 - 0.70) = $4,500.
6.4 Revenues = $1,000,000
   Revenues = $2,500,000.

a. NOPAT = EBIT(1 - Tax rate)
   = $150,000,000(0.6)
   = $90,000,000.

b. NONC_{90} = Operating CA - operating CL
   = $360,000,000 - (390,000,000 + 60,000,000)
   = $210,000,000.

   NONC_{91} = $372,000,000 - $180,000,000 = $192,000,000.

c. Operating capital_{90} = Net plant + Net operating
   and equipment + working capital
   = $250,000,000 + $210,000,000
   = $460,000,000.

   Operating capital_{91} = $300,000,000 + $192,000,000
   = $492,000,000.

d. FCF = NOPAT - Net investment in operating capital
   = $90,000,000 - ($492,000,000 - $460,000,000)
   = $58,000,000.

e. The large increase in dividends for 2001 can most likely be
   attributed to a large increase in free cash flow from 2000 to 2001,
   since FCF represents the amount of cash available to be paid out to
   stockholders after the company has made all investments in fixed
   assets and working capital necessary to sustain the business.