

## Chapter 2

### Financial Statements, Cash Flow, and Taxes

#### ANSWERS TO END-OF-CHAPTER QUESTIONS

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- 2-1
- 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 stockholders' equity shows how much of the firm's earnings were retained in the business rather than paid out in dividends. It also shows the resulting balance of the retained earnings account and the stockholders' equity account. 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 assets minus operating current liabilities. Total net operating capital is 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. 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. 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.
- i. Capital gain (loss) is the profit (loss) from the sale of a capital asset for more (less) than its purchase price. Ordinary corporate operating losses can be carried backward for 2 years or forward for 20 years to offset taxable income in a given year.

- j. Improper accumulation is the retention of earnings by a business for the purpose of enabling stockholders to avoid personal income taxes on dividends. 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.
- 2-2 The four financial statements contained in most annual reports are the balance sheet, income statement, statement of stockholders' equity, and statement of cash flows.
- 2-3 No, because the \$20 million of retained earnings doesn't mean the company has \$20 million in cash. The retained earnings figure represents cumulative amount of net income that the firm has not paid out as dividends during its entire history. Thus, most of the reinvested earnings were probably spent on the firm's operating assets, such as buildings and equipment.
- 2-5 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.
- 2-6 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.
- 2-7 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.
- 2-8 If the business were organized as a partnership or a proprietorship, its income could be taken out by the owners without being subject to double taxation. Also, if you expected to have losses for a few years while the company was getting started, if you were *not* incorporated, and if you had outside income, the business losses could be used to offset your other income and reduce your total tax bill. These factors would lead you to *not* incorporate the business. An alternative would be to organize as an S Corporation, if requirements are met.

## SOLUTIONS TO END-OF-CHAPTER PROBLEMS

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- 2-1 Corporate yield = 9%; T = 35.5%  
 AT yield =  $9\%(1 - T)$   
 $= 9\%(0.645) = 5.76\%$ .

- 2-2 Corporate bond yields 8%. Municipal bond yields 6%.

$$\begin{aligned} \text{Equivalent pretax yield on taxable bond} &= \frac{\text{Yield on muni}}{(1-T)} \\ 8\% &= \frac{6\%}{(1-T)} \\ 0.08 - 0.08T &= 0.06 \\ -0.08T &= -0.02 \\ T &= 25\%. \end{aligned}$$

- 2-3 NI = \$3,000,000; EBIT = \$6,000,000; T = 40%; Interest = ?  
 Need to set up an income statement and work from the bottom up.

EBIT	\$6,000,000	
Interest	<u>1,000,000</u>	
EBT	\$5,000,000	$\text{EBT} = \frac{\$3,000,000}{(1-T)} = \frac{\$3,000,000}{0.6}$
Taxes (40%)	<u>2,000,000</u>	
NI	<u>\$3,000,000</u>	

$$\text{Interest} = \text{EBIT} - \text{EBT} = \$6,000,000 - \$5,000,000 = \$1,000,000.$$

- 2-4 EBITDA = \$7,500,000; NI = \$1,800,000; Int = \$2,000,000; T = 40%; DA = ?

EBITDA	\$7,500,000	
DA	<u>2,500,000</u>	$\text{EBITDA} - \text{DA} = \text{EBIT}; \text{DA} = \text{EBITDA} - \text{EBIT}$
EBIT	\$5,000,000	$\text{EBIT} = \text{EBT} + \text{Int} = \$3,000,000 + \$2,000,000$
Int	<u>2,000,000</u>	(Given)
EBT	\$3,000,000	$\frac{\$1,800,000}{(1-T)} = \frac{\$1,800,000}{0.6}$
Taxes (40%)	<u>1,200,000</u>	
NI	<u>\$1,800,000</u>	(Given)

2-5 NI = \$3,100,000; DEP = \$500,000; AMORT = 0; NCF = ?  
 NCF = NI + DEP and AMORT = \$3,100,000 + \$500,000 = \$3,600,000.

2-6 NI = \$50,000,000; R/E<sub>YE</sub> = \$810,000,000; R/E<sub>BY</sub> = \$780,000,000; Dividends = ?

$$\begin{aligned} R/E_{BY} + NI - \text{Div} &= R/E_{YE} \\ \$780,000,000 + \$50,000,000 - \text{Div} &= \$810,000,000 \\ \$830,000,000 - \text{Div} &= \$810,000,000 \\ \$20,000,000 &= \text{Div}. \end{aligned}$$

2-7	Income	\$365,000
	Less Interest deduction	(50,000)
	Plus: Dividends received <sup>a</sup>	<u>4,500</u>
	Taxable income	<u>\$319,500</u>

<sup>a</sup>For a corporation, 70% of dividends received are excluded from taxes; therefore, taxable dividends are calculated as  $\$15,000(1 - 0.70) = \$4,500$ .

$$\text{Tax} = \$22,250 + (\$319,500 - \$100,000)(0.39) = \$22,250 + \$85,605 = \$107,855.$$

After-tax income:

Taxable income	\$319,500
Taxes	(107,855)
Plus Non-taxable dividends received <sup>b</sup>	<u>10,500</u>
Net income	<u>\$222,145</u>

<sup>b</sup>Non-taxable dividends are calculated as  $\$15,000 \times 0.7 = \$10,500$ .

The company's marginal tax rate is 39 percent. The company's average tax rate is  $\$107,855/\$319,500 = 33.76\%$ .

2-8 a. Tax = \$3,400,000 + (\$10,500,000 - \$10,000,000)(0.35) = \$3,575,000.

b. Tax = \$1,000,000(0.35) = \$350,000.

c. Tax = (\$1,000,000)0.30(0.35) = \$105,000.

2-9 A-T yield on FLA bond = 5%.

A-T yield on AT&T bond = 7.5% - Taxes = 7.5% - 7.5%(0.35) = 4.875%.

Check: Invest \$10,000 @ 7.5% = \$750 interest.

Pay 35% tax, so A-T income = \$750(1 - T) = \$750(0.65) = \$487.50.

A-T rate of return = \$487.50/\$10,000 = 4.875%.

A-T yield on AT&T preferred stock:

A-T yield = 6% - Taxes = 6% - 0.3(6%)(0.35) = 6% - 0.63% = 5.37%.

Therefore, invest in AT&T preferred stock. We could make this a harder problem by asking for the tax rate that would cause the company to prefer the Florida bond or the AT&T bond.

2-10 EBIT = \$750,000; DEP = \$200,000; 100% Equity; T = 40%  
NI = ?; NCF = ?; OCF = ?

First, determine net income by setting up an income statement:

EBIT	\$750,000
Interest	<u>0</u>
EBT	\$750,000
Taxes (40%)	<u>300,000</u>
NI	<u>\$450,000</u>

NCF = NI + DEP = \$450,000 + \$200,000 = \$650,000.

2-11 a. Income Statement

Sales revenues	\$12,000,000
Costs except depreciation	9,000,000
Depreciation	<u>1,500,000</u>
EBT	\$ 1,500,000
Taxes (40%)	<u>600,000</u>
Net income	\$ 900,000
Add back depreciation	<u>1,500,000</u>
Net cash flow	<u><u>\$ 2,400,000</u></u>

- b. If depreciation doubled, taxable income would fall to zero and taxes would be zero. Thus, net income would decrease to zero, but net cash flow would rise to \$3,000,000. Menendez would save \$600,000 in taxes, thus increasing its cash flow:

$$\Delta CF = T(\Delta \text{Depreciation}) = 0.4(\$1,500,000) = \$600,000.$$

- c. If depreciation were halved, taxable income would rise to \$2,250,000 and taxes to \$900,000. Therefore, net income would rise to \$1,350,000, but net cash flow would fall to \$2,100,000.
- d. You should prefer to have higher depreciation charges and higher cash flows. Net cash flows are the funds that are available to the owners to withdraw from the firm and, therefore, cash flows should be more important to them than net income.

2-12 a.

EBIT	\$1,260
x (1-Tax rate)	<u>60.0%</u>
Net operating profit after taxes (NOPAT)	\$756

b.

	<b>2010</b>	<b>2009</b>
Cash	\$550	\$500
+ Accounts receivable	2,750	2,500
+ <u>Inventories</u>	<u>1,650</u>	<u>1,500</u>
Operating current assets	\$4,950	\$4,500
Accounts payable	\$1,100	\$1,000
+ <u>Accruals</u>	<u>550</u>	<u>500</u>
Operating current liabilities	\$1,650	\$1,500
Operating current assets	\$4,950	\$4,500
- <u>Operating current liabilities</u>	<u>1,650</u>	<u>1,500</u>
Net operating working capital (NOWC)	\$3,300	\$3,000

c.

	<b>2010</b>	<b>2009</b>
Net operating working capital (NOWC)	\$3,300	\$3,000
+ <u>Net plant and equipment</u>	<u>3,850</u>	<u>3,500</u>
Total net operating capital	\$7,150	\$6,500

d.

	<b>2010</b>
NOPAT	\$756
- <u>Investment in total net operating capital</u>	<u>650</u>
Free cash flow	\$106

e.

	<b>2010</b>
NOPAT	\$756
÷ <u>Total net operating capital</u>	<u>7,150</u>
Return on invested capital (ROIC)	10.57%



f.

<b>Uses of FCF</b>	<b>2010</b>
After-tax interest payment =	\$72
Reduction (increase) in debt =	-\$284
Payment of dividends =	\$220
Repurchase (Issue) stock =	\$88
Purchase (Sale) of short-term investments =	<u>\$10</u>
Total uses of FCF =	\$106

2-13	<u>Prior Years</u>	<u>2008</u>	<u>2009</u>
	Profit earned	\$150,000	\$150,000
	Carry-back credit	<u>150,000</u>	<u>150,000</u>
	Adjusted profit	\$ 0	\$ 0
	Tax previously paid (40%)	<u>60,000</u>	<u>60,000</u>
	Tax refund: Taxes previously paid	<u>\$ 60,000</u>	<u>\$ 60,000</u>

Total check from U.S. Treasury = \$60,000 + \$60,000 = \$120,000.

<u>Future Years</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Estimated profit	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
Carry-forward credit	<u>150,000</u>	<u>150,000</u>	<u>50,000</u>	<u>0</u>	<u>0</u>
Adjusted profit	\$ 0	\$ 0	\$100,000	\$150,000	\$150,000
Tax (at 40%)	<u>0</u>	<u>0</u>	<u>\$ 40,000</u>	<u>\$ 60,000</u>	<u>\$ 60,000</u>

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