

2.5

SUMMARY AND CONCLUSIONS

This chapter has introduced you to some of the basics of financial statements, taxes, and cash flow. In it, we saw that:

1. The book values on an accounting balance sheet can be very different from market values. The goal of financial management is to maximize the market value of the stock, not its book value.
2. Net income as it is computed on the income statement is not cash flow. A primary reason is that depreciation, a noncash expense, is deducted when net income is computed.
3. Marginal and average tax rates can be different, and it is the marginal tax rate that is relevant for most financial decisions.
4. The marginal tax rate paid by the corporations with the largest incomes is 35 percent.
5. There is a cash flow identity much like the balance sheet identity. It says that cash flow from assets equals cash flow to creditors and stockholders.

The calculation of cash flow from financial statements isn't difficult. Care must be taken in handling noncash expenses, such as depreciation, and not to confuse operating costs with financing costs. Most of all, it is important not to confuse book values with market values, or accounting income with cash flow.

Chapter Review and Self-Test Problem

- 2.1 Cash Flow for Mara Corporation** This problem will give you some practice working with financial statements and figuring cash flow. Based on the following information for Mara Corporation, prepare an income statement for 2002 and balance sheets for 2001 and 2002. Next, following our U.S. Corporation examples in the chapter, calculate cash flow from assets, cash flow to creditors, and cash flow to stockholders for Mara for 2002. Use a 35 percent tax rate throughout. You can check your answers against ours, found in the following section.

| | 2001 | 2002 |
|---------------------|---------|---------|
| Sales | \$4,203 | \$4,507 |
| Cost of goods sold | 2,422 | 2,633 |
| Depreciation | 785 | 952 |
| Interest | 180 | 196 |
| Dividends | 225 | 250 |
| Current assets | 2,205 | 2,429 |
| Net fixed assets | 7,344 | 7,650 |
| Current liabilities | 1,003 | 1,255 |
| Long-term debt | 3,106 | 2,085 |

Answer to Chapter Review and Self-Test Problem

- 2.1** In preparing the balance sheets, remember that shareholders' equity is the residual. With this in mind, Mara's balance sheets are as follows:

| MARA CORPORATION | | | | | |
|--------------------------------------------------------|----------------|-----------------|--------------------------------------------|----------------|-----------------|
| Balance sheets as of December 31, 2001 and 2002 | | | | | |
| | 2001 | 2002 | | 2001 | 2002 |
| Current assets | \$2,205 | \$ 2,429 | Current liabilities | \$1,003 | \$ 1,255 |
| Net fixed assets | <u>7,344</u> | <u>7,650</u> | Long-term debt | 3,106 | 2,085 |
| | | | Equity | <u>5,440</u> | <u>6,739</u> |
| Total assets | <u>\$9,549</u> | <u>\$10,079</u> | Total liabilities and shareholders' equity | <u>\$9,549</u> | <u>\$10,079</u> |

The income statement is straightforward:

| MARA CORPORATION | |
|------------------------------------|---------------|
| 2002 Income Statement | |
| Sales | \$4,507 |
| Cost of goods sold | 2,633 |
| Depreciation | <u>952</u> |
| Earnings before interest and taxes | \$ 922 |
| Interest paid | <u>196</u> |
| Taxable income | \$ 726 |
| Taxes (35%) | <u>254</u> |
| Net income | <u>\$ 472</u> |
| Dividends | \$250 |
| Addition to retained earnings | 222 |

Notice that we've used an average 35 percent tax rate. Also notice that the addition to retained earnings is just net income less cash dividends.

We can now pick up the figures we need to get operating cash flow:

| MARA CORPORATION | |
|------------------------------------|----------------|
| 2002 Operating Cash Flow | |
| Earnings before interest and taxes | \$ 922 |
| + Depreciation | 952 |
| – Taxes | <u>\$ 254</u> |
| Operating cash flow | <u>\$1,620</u> |

Next, we get the net capital spending for the year by looking at the change in fixed assets, remembering to account for depreciation:

| | |
|------------------------------|----------------|
| Ending net fixed assets | \$7,650 |
| – Beginning net fixed assets | 7,344 |
| + Depreciation | <u>952</u> |
| Net capital spending | <u>\$1,258</u> |

After calculating beginning and ending NWC, we take the difference to get the change in NWC:

| | |
|-----------------|----------------------|
| Ending NWC | \$1,174 |
| – Beginning NWC | <u>1,202</u> |
| Change in NWC | <u><u>–\$ 28</u></u> |

We now combine operating cash flow, net capital spending, and the change in net working capital to get the total cash flow from assets:

| MARA CORPORATION | |
|-----------------------------------|----------------------|
| 2002 Cash Flow from Assets | |
| Operating cash flow | \$1,620 |
| – Net capital spending | <u>1,258</u> |
| – Change in NWC | <u>–28</u> |
| Cash flow from assets | <u><u>\$ 390</u></u> |

To get cash flow to creditors, notice that long-term borrowing decreased by \$1,021 during the year and that interest paid was \$196, so:

| MARA CORPORATION | |
|------------------------------------|------------------------|
| 2002 Cash Flow to Creditors | |
| Interest paid | \$ 196 |
| – Net new borrowing | <u>–1,021</u> |
| Cash flow to creditors | <u><u>\$ 1,217</u></u> |

Finally, dividends paid were \$250. To get net new equity raised, we have to do some extra calculating. Total equity was up by $\$6,739 - 5,440 = \$1,299$. Of this increase, \$222 was from additions to retained earnings, so \$1,077 in new equity was raised during the year. Cash flow to stockholders was thus:

| MARA CORPORATION | |
|---------------------------------------|-----------------------|
| 2002 Cash Flow to Stockholders | |
| Dividends paid | \$ 250 |
| – Net new equity raised | <u>1,077</u> |
| Cash flow to stockholders | <u><u>–\$ 827</u></u> |

As a check, notice that cash flow from assets (\$390) does equal cash flow to creditors plus cash flow to stockholders ($\$1,217 - 827 = \390).

Concepts Review and Critical Thinking Questions

- Liquidity** What does liquidity measure? Explain the trade-off a firm faces between high liquidity and low liquidity levels.
- Accounting and Cash Flows** Why is it that the revenue and cost figures shown on a standard income statement may not be representative of the actual cash inflows and outflows that occurred during a period?
- Book Values versus Market Values** In preparing a balance sheet, why do you think standard accounting practice focuses on historical cost rather than market value?

4. **Operating Cash Flow** In comparing accounting net income and operating cash flow, what two items do you find in net income that are not in operating cash flow? Explain what each is and why it is excluded in operating cash flow.
5. **Book Values versus Market Values** Under standard accounting rules, it is possible for a company's liabilities to exceed its assets. When this occurs, the owners' equity is negative. Can this happen with market values? Why or why not?
6. **Cash Flow from Assets** Suppose a company's cash flow from assets was negative for a particular period. Is this necessarily a good sign or a bad sign?
7. **Operating Cash Flow** Suppose a company's operating cash flow was negative for several years running. Is this necessarily a good sign or a bad sign?
8. **Net Working Capital and Capital Spending** Could a company's change in NWC be negative in a given year? (Hint: Yes.) Explain how this might come about. What about net capital spending?
9. **Cash Flow to Stockholders and Creditors** Could a company's cash flow to stockholders be negative in a given year? (Hint: Yes.) Explain how this might come about. What about cash flow to creditors?
10. **Firm Values** Referring back to the General Electric example used at the beginning of the chapter, note that we suggested that General Electric's stockholders probably didn't suffer as a result of the reported loss. What do you think was the basis for our conclusion?

Questions and Problems

1. **Building a Balance Sheet** Penguin Pucks, Inc., has current assets of \$3,000, net fixed assets of \$6,000, current liabilities of \$900, and long-term debt of \$5,000. What is the value of the shareholders' equity account for this firm? How much is net working capital? **Basic**
(Questions 1–13)
2. **Building an Income Statement** Papa Roach Exterminators, Inc., has sales of \$432,000, costs of \$210,000, depreciation expense of \$25,000, interest expense of \$8,000, and a tax rate of 35 percent. What is the net income for this firm?
3. **Dividends and Retained Earnings** Suppose the firm in Problem 2 paid out \$65,000 in cash dividends. What is the addition to retained earnings?
4. **Per-Share Earnings and Dividends** Suppose the firm in Problem 3 had 30,000 shares of common stock outstanding. What is the earnings per share, or EPS, figure? What is the dividends per share figure?
5. **Market Values and Book Values** Klingon Widgets, Inc., purchased new cloaking machinery three years ago for \$5 million. The machinery can be sold to the Romulans today for \$1.5 million. Klingon's current balance sheet shows net fixed assets of \$1,600,000, current liabilities of \$1,800,000, and net working capital of \$900,000. If all the current assets were liquidated today, the company would receive \$2.9 million cash. What is the book value of Klingon's assets today? What is the market value?
6. **Calculating Taxes** The Bradley Co. had \$185,000 in 2002 taxable income. Using the rates from Table 2.3 in the chapter, calculate the company's 2002 income taxes.
7. **Tax Rates** In Problem 6, what is the average tax rate? What is the marginal tax rate?

Basic*(continued)*

8. **Calculating OCF** Gonas, Inc., has sales of \$9,750, costs of \$5,740, depreciation expense of \$1,000, and interest expense of \$240. If the tax rate is 35 percent, what is the operating cash flow, or OCF?
9. **Calculating Net Capital Spending** Andretti Driving School's December 31, 2001, balance sheet showed net fixed assets of \$3.1 million, and the December 31, 2002, balance sheet showed net fixed assets of \$3.5 million. The company's 2002 income statement showed a depreciation expense of \$850,000. What was Andretti's net capital spending for 2002?
10. **Calculating Additions to NWC** The December 31, 2001, balance sheet of Venus's Tennis Shop, Inc., showed current assets of \$1,200 and current liabilities of \$720. The December 31, 2002, balance sheet showed current assets of \$1,440 and current liabilities of \$525. What was the company's 2002 change in net working capital, or NWC?
11. **Cash Flow to Creditors** The December 31, 2001, balance sheet of Serena's Tennis Shop, Inc., showed long-term debt of \$3.1 million, and the December 31, 2002, balance sheet showed long-term debt of \$3.6 million. The 2002 income statement showed an interest expense of \$400,000. What was the firm's cash flow to creditors during 2002?
12. **Cash Flow to Stockholders** The December 31, 2001, balance sheet of Serena's Tennis Shop, Inc., showed \$750,000 in the common stock account and \$7.2 million in the additional paid-in surplus account. The December 31, 2002, balance sheet showed \$825,000 and \$7.8 million in the same two accounts, respectively. If the company paid out \$500,000 in cash dividends during 2002, what was the cash flow to stockholders for the year?
13. **Calculating Total Cash Flows** Given the information for Serena's Tennis Shop, Inc., in Problems 11 and 12, suppose you also know that the firm's net capital spending for 2002 was \$600,000, and that the firm reduced its net working capital investment by \$195,000. What was the firm's 2002 operating cash flow, or OCF?
14. **Calculating Total Cash Flows** Bedrock Gravel Corp. shows the following information on its 2002 income statement: sales = \$130,000; costs = \$82,000; other expenses = \$3,500; depreciation expense = \$6,000; interest expense = \$14,000; taxes = \$8,330; dividends = \$6,400. In addition, you're told that the firm issued \$2,830 in new equity during 2002, and redeemed \$6,000 in outstanding long-term debt.
 - a. What is the 2002 operating cash flow?
 - b. What is the 2002 cash flow to creditors?
 - c. What is the 2002 cash flow to stockholders?
 - d. If net fixed assets increased by \$5,000 during the year, what was the addition to NWC?
15. **Using Income Statements** Given the following information for Soprano Pizza Co., calculate the depreciation expense: sales = \$21,000; costs = \$10,000; addition to retained earnings = \$4,000; dividends paid = \$800; interest expense = \$1,200; tax rate = 35 percent.
16. **Preparing a Balance Sheet** Prepare a balance sheet for Tim's Couch Corp. as of December 31, 2002, based on the following information: cash = \$300,000; patents and copyrights = \$775,000; accounts payable = \$700,000; accounts receivable = \$150,000; tangible net fixed assets = \$3,500,000; inventory =

Intermediate*(Questions 14–22)*

\$425,000; notes payable = \$145,000; accumulated retained earnings = \$2,150,000; long-term debt = \$1,300,000.

Intermediate*(continued)*

- 17. Residual Claims** Clapper's Clippers, Inc., is obligated to pay its creditors \$2,900 during the year.
- What is the market value of the shareholders' equity if assets have a market value of \$3,600?
 - What if assets equal \$2,300?
- 18. Marginal versus Average Tax Rates** (Refer to Table 2.3.) Corporation Growth has \$80,000 in taxable income, and Corporation Income has \$9,000,000 in taxable income.
- What is the tax bill for each firm?
 - Suppose both firms have identified a new project that will increase taxable income by \$10,000. How much in additional taxes will each firm pay? Why is this amount the same?
- 19. Net Income and OCF** During 2002, Lambert Limo Corp. had sales of \$900,000. Cost of goods sold, administrative and selling expenses, and depreciation expenses were \$600,000, \$170,000, and \$105,000, respectively. In addition, the company had an interest expense of \$85,000 and a tax rate of 35 percent. (Ignore any tax loss carry-back or carry-forward provisions.)
- What is Lambert's net income for 2002?
 - What is its operating cash flow?
 - Explain your results in (a) and (b).
- 20. Accounting Values versus Cash Flows** In Problem 19, suppose Lambert Limo Corp. paid out \$25,000 in cash dividends. Is this possible? If no new investments were made in net fixed assets or net working capital, and if no new stock was issued during the year, what do you know about the firm's long-term debt account?
- 21. Calculating Cash Flows** Faulk Industries had the following operating results for 2002: sales = \$12,200; cost of goods sold = \$9,000; depreciation expense = \$1,600; interest expense = \$200; dividends paid = \$300. At the beginning of the year, net fixed assets were \$8,000, current assets were \$2,000, and current liabilities were \$1,500. At the end of the year, net fixed assets were \$8,400, current assets were \$3,100, and current liabilities were \$1,800. The tax rate for 2002 was 34 percent.
- What is net income for 2002?
 - What is the operating cash flow for 2002?
 - What is the cash flow from assets for 2002? Is this possible? Explain.
 - If no new debt was issued during the year, what is the cash flow to creditors? What is the cash flow to stockholders? Explain and interpret the positive and negative signs of your answers in (a) through (d).
- 22. Calculating Cash Flows** Consider the following abbreviated financial statements for Parrothead Enterprises:

| PARROTHEAD ENTERPRISES | | | | |
|---------------------------------------------------------|--------|---------------------------------------|---------------------|---------------|
| Partial Balance Sheets as of December 31, 2001 and 2002 | | | | |
| | 2001 | 2002 | 2001 | 2002 |
| <i>Assets</i> | | <i>Liabilities and Owners' Equity</i> | | |
| Current assets | \$ 625 | \$ 684 | Current liabilities | \$ 245 \$ 332 |
| Net fixed assets | 2,800 | 3,100 | Long-term debt | 1,400 1,600 |

| PARROTHEAD ENTERPRISES | |
|------------------------|---------|
| 2002 Income Statement | |
| Sales | \$8,100 |
| Costs | 3,920 |
| Depreciation | 700 |
| Interest paid | 212 |

Intermediate

(continued)

- a. What is owners' equity for 2001 and 2002?
- b. What is the change in net working capital for 2002?
- c. In 2002, Parrothead Enterprises purchased \$1,500 in new fixed assets. How much in fixed assets did Parrothead Enterprises sell? What is the cash flow from assets for the year? (The tax rate is 35 percent.)
- d. During 2002, Parrothead Enterprises raised \$300 in new long-term debt. How much long-term debt must Parrothead Enterprises have paid off during the year? What is the cash flow to creditors?

Challenge

(Questions 23–26)

23. **Net Fixed Assets and Depreciation** On the balance sheet, the net fixed assets (NFA) account is equal to the gross fixed assets (FA) account, which records the acquisition cost of fixed assets, minus the accumulated depreciation (AD) account, which records the total depreciation taken by the firm against its fixed assets. Using the fact that $NFA = FA - AD$, show that the expression given in the chapter for net capital spending, $NFA_{\text{end}} - NFA_{\text{beg}} + D$ (where D is the depreciation expense during the year), is equivalent to $FA_{\text{end}} - FA_{\text{beg}}$.
24. **Tax Rates** Refer to the corporate marginal tax rate information in Table 2.3.
 - a. Why do you think the marginal tax rate jumps up from 34 percent to 39 percent at a taxable income of \$100,001, and then falls back to a 34 percent marginal rate at a taxable income of \$335,001?
 - b. Compute the average tax rate for a corporation with exactly \$335,001 in taxable income. Does this confirm your explanation in part (a)? What is the average tax rate for a corporation with exactly \$18,333,334? Is the same thing happening here?
 - c. The 39 percent and 38 percent tax rates both represent what is called a tax "bubble." Suppose the government wanted to lower the upper threshold of the 39 percent marginal tax bracket from \$335,000 to \$200,000. What would the new 39 percent bubble rate have to be?

Use the following information for Taco Swell, Inc., for Problems 25 and 26 (assume the tax rate is 34 percent):

| | 2001 | 2002 |
|--------------------------|---------|---------|
| Sales | \$2,870 | \$3,080 |
| Depreciation | 413 | 413 |
| Cost of goods sold | 987 | 1,121 |
| Other expenses | 238 | 196 |
| Interest | 192 | 221 |
| Cash | 1,505 | 1,539 |
| Accounts receivable | 1,992 | 2,244 |
| Short-term notes payable | 291 | 273 |
| Long-term debt | 5,040 | 5,880 |
| Net fixed assets | 12,621 | 12,922 |
| Accounts payable | 1,581 | 1,533 |
| Inventory | 3,542 | 3,640 |
| Dividends | 350 | 385 |

25. **Financial Statements** Draw up an income statement and balance sheet for this company for 2001 and 2002.

26. Calculating Cash Flow For 2002, calculate the cash flow from assets, cash flow to creditors, and cash flow to stockholders.

- 1. Marginal and Average Tax Rates** Download the annual income statements for Sharper Image (SHRP). Looking back at Table 2.3, what is the marginal income tax rate for Sharper Image? Using the total income tax and the pretax income numbers calculate the tax rate for Sharper Image. Is this number greater than 35 percent? Why or why not?
 - 2. Net Working Capital** Find the annual balance sheets for American Electric Power (AEP) and Lands' End (LE). Calculate the net working capital for each company. Is American Electric Power's net working capital negative? If so, does this indicate potential financial difficulty for the company? What about Lands' End?
 - 3. Per Share Earnings and Dividends** Find the annual income statements for Harley Davidson (HDI), Hawaiian Electric Industries (HE) and AOL Time Warner (AOL). What are the earnings per share (EPS Basic from operations) for each of these companies? What are the dividends per share for each company? Why do these companies pay out a different portion of income in the form dividends?
 - 4. Cash Flow Identity** Download the annual balance sheets and income statements for Landry's Seafood Restaurants (LNY). Using the most recent year calculate the cash flow identity for Landry Seafood. Explain your answer.
-
- 2.1. Change in Net Working Capital** Find the most recent abbreviated balance sheets for General Dynamics at finance.yahoo.com. Enter the ticker symbol "GD," follow the "Research" link, and the "Financials" link. Using the two most recent balance sheets, calculate the change in net working capital. What does this number mean?
 - 2.2. Book Values versus Market Values** The home page for Coca-Cola Company can be found at www.coca-cola.com. Locate the most recent annual report, which contains a balance sheet for the company. What is the book value of equity for Coca-Cola? The market value of a company is the number of shares of stock outstanding times the price per share. This information can be found at finance.yahoo.com using the ticker symbol for Coca-Cola (KO). What is the market value of equity? Which number is more relevant for shareholders?
 - 2.3. Net Working Capital** Duke Energy is one of the world's largest energy companies. Go to the company's home page at www.dukeenergy.com, follow the link to the investor's page, and locate the annual reports. What was Duke Energy's net working capital for the most recent year? Does this number seem low to you given Duke's current liabilities? Does this indicate that Duke Energy may be experiencing financial problems? Why or why not?
 - 2.4. Cash Flows to Stockholders and Creditors** Cooper Tire and Rubber Company provides financial information for investors on its web site at

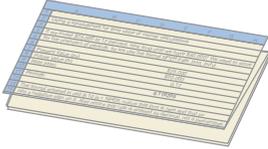
S&P Problems

STANDARD & POOR'S

What's On
the Web?

www.coopertires.com. Follow the “Investor Information” link and find the most recent annual report. Using the consolidated statements of cash flows, calculate the cash flow to stockholders and the cash flow to creditors.

- 2.5. **Average and Marginal Tax Rates** Find the most recent income statement for IBM at www.ibm.com. What is the marginal tax rate for IBM? What is the average tax rate for IBM? Is the average tax rate 35 percent? Why or why not?



Spreadsheet Templates 2-2, 2-3, 2-4, 2-6, 2-8, 2-14, 2-15, 2-19, 2-25, 2-26