
CHAPTER 2

WORKING WITH FINANCIAL STATEMENTS

Answers to Concepts Review and Critical Thinking Questions

1. Liquidity measures how quickly and easily an asset can be converted to cash without significant loss in value. It's desirable for firms to have high liquidity so that they can more safely meet short-term creditor demands. However, liquidity also has an opportunity cost. Firms generally reap higher returns by investing in illiquid, productive assets. It's up to the firm's financial management staff to find a reasonable compromise between these opposing needs.
2. The recognition and matching principles in financial accounting call for revenues, and the costs associated with producing those revenues, to be "booked" when the revenue process is essentially complete, not necessarily when the cash is collected or bills are paid. Note that this way is not necessarily correct; it's the way accountants have chosen to do it.
3. Historical costs can be objectively and precisely measured, whereas market values can be difficult to estimate, and different analysts would come up with different numbers. Thus, there is a tradeoff between relevance (market values) and objectivity (book values).
4. Depreciation is a non-cash deduction that reflects adjustments made in asset book values in accordance with the matching principle in financial accounting. Interest expense is a cash outlay, but it's a financing cost, not an operating cost.
5. Market values can never be negative. Imagine a share of stock selling for $-\$20$. This would mean that if you placed an order for 100 shares, you would get the stock along with a check for $\$2,000$. How many shares do you want to buy? More generally, because of corporate and individual bankruptcy laws, net worth for a person or a corporation cannot be negative, implying that liabilities cannot exceed assets in market value.
6. For a successful company that is rapidly expanding, capital outlays would typically be large, possibly leading to negative cash flow from assets. In general, what matters is whether the money is spent wisely, not whether cash flow from assets is positive or negative.
7. It's probably not a good sign for an established company, but it would be fairly ordinary for a start-up, so it depends.
8. For example, if a company were to become more efficient in inventory management, the amount of inventory needed would decline. The same might be true if it becomes better at collecting its receivables. In general, anything that leads to a decline in ending NWC relative to beginning NWC would have this effect. Negative net capital spending would mean more long-lived assets were liquidated than purchased.

9. If a company raises more money from selling stock than it pays in dividends in a particular period, its cash flow to stockholders will be negative. If a company borrows more than it pays in interest, its cash flow to creditors will be negative.
10. The adjustments discussed were purely accounting changes; they had no cash flow or market value consequences unless the new accounting information caused stockholders to revalue the company.

Solutions to Questions and Problems

NOTE: All end-of-chapter problems were solved using a spreadsheet. Many problems require multiple steps. Due to space and readability constraints, when these intermediate steps are included in this solutions manual, rounding may appear to have occurred. However, the final answer for each problem is found without rounding during any step in the problem.

Basic

1. The balance sheet for the company will look like this:

Balance sheet			
Current assets	\$2,090	Current liabilities	\$1,710
Net fixed assets	<u>9,830</u>	Long-term debt	4,520
		Owners' equity	<u>5,690</u>
 Total assets	 <u>\$11,920</u>	 Total liabilities and owners' equity	 <u>\$11,920</u>

The owners' equity is a plug variable. We know that total assets must equal total liabilities and owners' equity. Total liabilities and owners' equity is the sum of all debt and equity, so if we subtract debt from total liabilities and owners' equity, the remainder must be the equity balance, so:

$$\text{Owners' equity} = \text{Total liabilities and owners' equity} - \text{Current liabilities} - \text{Long-term debt}$$

$$\text{Owners' equity} = \$11,920 - 1,710 - 4,520$$

$$\text{Owners' equity} = \$5,690$$

Net working capital is current assets minus current liabilities, so:

$$\text{NWC} = \text{Current assets} - \text{Current liabilities}$$

$$\text{NWC} = \$2,090 - 1,710$$

$$\text{NWC} = \$380$$

2. The income statement starts with revenues and subtracts costs to arrive at EBIT. We then subtract out interest to get taxable income, and then subtract taxes to arrive at net income. Doing so, we get:

<u>Income Statement</u>	
Sales	\$634,000
Costs	328,000
Depreciation	<u>73,000</u>
EBIT	\$233,000
Interest	<u>38,000</u>
Taxable income	\$195,000
Taxes	<u>40,950</u>
Net income	<u>\$154,050</u>

3. The dividends paid plus the addition to retained earnings must equal net income, so:

$$\begin{aligned} \text{Net income} &= \text{Dividends} + \text{Addition to retained earnings} \\ \text{Addition to retained earnings} &= \$154,050 - 68,000 \\ \text{Addition to retained earnings} &= \$86,050 \end{aligned}$$

4. Earnings per share is the net income divided by the shares outstanding, so:

$$\begin{aligned} \text{EPS} &= \text{Net income} / \text{Shares outstanding} \\ \text{EPS} &= \$154,050 / 35,000 \\ \text{EPS} &= \$4.40 \text{ per share} \end{aligned}$$

And dividends per share are the total dividends paid divided by the shares outstanding, so:

$$\begin{aligned} \text{DPS} &= \text{Dividends} / \text{Shares outstanding} \\ \text{DPS} &= \$68,000 / 35,000 \\ \text{DPS} &= \$1.94 \text{ per share} \end{aligned}$$

5. Using Table 2.3, we can see the marginal tax schedule. The first \$9,525 of income is taxed at 10 percent, the next \$29,175 is taxed at 12 percent, the next \$43,800 is taxed at 22 percent, the next \$75,000 is taxed at 24 percent, and the last \$31,500 is taxed at 32 percent. So, the total taxes will be:

$$\begin{aligned} \text{Taxes} &= .10(\$9,525) + .12(\$29,175) + .22(\$43,800) + .24(\$75,000) + .32(\$31,500) \\ \text{Taxes} &= \$42,170 \end{aligned}$$

6. The average tax rate is the total taxes paid divided by taxable income, so:

$$\begin{aligned} \text{Average tax rate} &= \text{Total tax} / \text{Taxable income} \\ \text{Average tax rate} &= \$42,170 / \$189,000 \\ \text{Average tax rate} &= .2231, \text{ or } 22.31\% \end{aligned}$$

The marginal tax rate is the tax rate on the next dollar of income. The person has net income of \$189,000 and the 32 percent tax bracket is applicable to a taxable income up to \$200,000, so the marginal tax rate is 32 percent.

7. To calculate the OCF, we first need to construct an income statement. The income statement starts with revenues and subtracts costs to arrive at EBIT. We then subtract out interest to get taxable income, and then subtract taxes to arrive at net income. Doing so, we get:

<u>Income Statement</u>	
Sales	\$38,530
Costs	12,750
Depreciation	<u>2,550</u>
EBIT	\$23,230
Interest	<u>1,850</u>
Taxable income	\$21,380
Taxes (21%)	<u>4,490</u>
Net income	<u>\$16,890</u>

Now we can calculate the OCF, which is:

$$\text{OCF} = \text{EBIT} + \text{Depreciation} - \text{Taxes}$$

$$\text{OCF} = \$23,230 + 2,550 - 4,490$$

$$\text{OCF} = \$21,290$$

8. Net capital spending is the increase in fixed assets, plus depreciation. Using this relationship, we find:

$$\text{Net capital spending} = \text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}} + \text{Depreciation}$$

$$\text{Net capital spending} = \$2,137,000 - 1,945,000 + 335,000$$

$$\text{Net capital spending} = \$527,000$$

9. The change in net working capital is the end of period net working capital minus the beginning of period net working capital, so:

$$\text{Change in NWC} = \text{NWC}_{\text{end}} - \text{NWC}_{\text{beg}}$$

$$\text{Change in NWC} = (\text{CA}_{\text{end}} - \text{CL}_{\text{end}}) - (\text{CA}_{\text{beg}} - \text{CL}_{\text{beg}})$$

$$\text{Change in NWC} = (\$1,675 - 1,290) - (\$1,490 - 1,210)$$

$$\text{Change in NWC} = \$105$$

10. The cash flow to creditors is the interest paid, minus any net new borrowing, so:

$$\text{Cash flow to creditors} = \text{Interest paid} - \text{Net new borrowing}$$

$$\text{Cash flow to creditors} = \text{Interest paid} - (\text{LTD}_{\text{end}} - \text{LTD}_{\text{beg}})$$

$$\text{Cash flow to creditors} = \$97,500 - (\$1,470,000 - 1,350,000)$$

$$\text{Cash flow to creditors} = -\$22,500$$

11. The cash flow to stockholders is the dividends paid minus any new equity raised. So, the cash flow to stockholders is: (Note that APIS is the additional paid-in surplus.)

$$\text{Cash flow to stockholders} = \text{Dividends paid} - \text{Net new equity}$$

$$\text{Cash flow to stockholders} = \text{Dividends paid} - [(\text{Common}_{\text{end}} + \text{APIS}_{\text{end}}) - (\text{Common}_{\text{beg}} + \text{APIS}_{\text{beg}})]$$

$$\text{Cash flow to stockholders} = \$149,500 - [(\$137,000 + 2,568,000) - (\$120,000 + 2,289,000)]$$

$$\text{Cash flow to stockholders} = -\$146,500$$

12. We know that cash flow from assets is equal to cash flow to creditors plus cash flow to stockholders. So, cash flow from assets is:

$$\begin{aligned} \text{Cash flow from assets} &= \text{Cash flow to creditors} + \text{Cash flow to stockholders} \\ \text{Cash flow from assets} &= -\$22,500 - 146,500 \\ \text{Cash flow from assets} &= -\$169,000 \end{aligned}$$

We also know that cash flow from assets is equal to the operating cash flow minus the change in net working capital and the net capital spending. We can use this relationship to find the operating cash flow. Doing so, we find:

$$\begin{aligned} \text{Cash flow from assets} &= \text{OCF} - \text{Change in NWC} - \text{Net capital spending} \\ -\$169,000 &= \text{OCF} - (-\$94,300) - (745,000) \\ \text{OCF} &= -\$169,000 - 94,300 + 745,000 \\ \text{OCF} &= \$481,700 \end{aligned}$$

Intermediate

13. To find the book value of current assets, we use: $\text{NWC} = \text{CA} - \text{CL}$. Rearranging to solve for current assets, we get:

$$\text{CA} = \text{NWC} + \text{CL} = \$210,000 + 830,000 = \$1,040,000$$

The market value of current assets and fixed assets is given, so:

Book value CA	= \$1,040,000	NWC	= \$ 950,000
Book value NFA	= \$3,150,000	Market value NFA	= \$4,600,000
Book value assets	= <u>\$4,190,000</u>	Total	= <u>\$5,550,000</u>

14. a. To calculate the OCF, we first need to construct an income statement. The income statement starts with revenues and subtracts costs to arrive at EBIT. We then subtract out interest to get taxable income, and then subtract taxes to arrive at net income. Doing so, we get:

<u>Income Statement</u>	
Sales	\$178,000
Costs	103,600
Other Expenses	5,100
Depreciation	<u>12,100</u>
EBIT	\$57,200
Interest	<u>8,900</u>
Taxable income	\$48,300
Taxes	<u>12,705</u>
Net income	<u>\$35,595</u>
Dividends	\$10,143
Addition to retained earnings	25,452

Dividends paid plus addition to retained earnings must equal net income, so:

$$\text{Net income} = \text{Dividends} + \text{Addition to retained earnings}$$

$$\text{Addition to retained earnings} = \$35,595 - 10,143$$

$$\text{Addition to retained earnings} = \$25,452$$

So, the operating cash flow is:

$$\text{OCF} = \text{EBIT} + \text{Depreciation} - \text{Taxes}$$

$$\text{OCF} = \$57,200 + 12,100 - 12,705$$

$$\text{OCF} = \$56,595$$

- b. The cash flow to creditors is the interest paid, minus any new borrowing. Since the company redeemed long-term debt, the net new borrowing is negative. So, the cash flow to creditors is:

$$\text{Cash flow to creditors} = \text{Interest paid} - \text{Net new borrowing}$$

$$\text{Cash flow to creditors} = \$8,900 - (-\$4,000)$$

$$\text{Cash flow to creditors} = \$12,900$$

- c. The cash flow to stockholders is the dividends paid minus any new equity. So, the cash flow to stockholders is:

$$\text{Cash flow to stockholders} = \text{Dividends paid} - \text{Net new equity}$$

$$\text{Cash flow to stockholders} = \$10,143 - 2,900$$

$$\text{Cash flow to stockholders} = \$7,243$$

- d. In this case, to find the addition to NWC, we need to find the cash flow from assets. We can then use the cash flow from assets equation to find the change in NWC. We know that cash flow from assets is equal to cash flow to creditors plus cash flow to stockholders. So, cash flow from assets is:

$$\text{Cash flow from assets} = \text{Cash flow to creditors} + \text{Cash flow to stockholders}$$

$$\text{Cash flow from assets} = \$12,900 + 7,243$$

$$\text{Cash flow from assets} = \$20,143$$

Net capital spending is equal to depreciation plus the increase in fixed assets, so:

$$\text{Net capital spending} = \text{Depreciation} + \text{Increase in fixed assets}$$

$$\text{Net capital spending} = \$12,100 + 23,140$$

$$\text{Net capital spending} = \$35,240$$

Now we can use the cash flow from assets equation to find the change in NWC. Doing so, we find:

$$\text{Cash flow from assets} = \text{OCF} - \text{Change in NWC} - \text{Net capital spending}$$

$$\$20,143 = \$56,595 - \text{Change in NWC} - \$35,240$$

$$\text{Change in NWC} = \$1,212$$

15. Here we need to work the income statement backward. Starting with net income, we know that net income is:

$$\begin{aligned} \text{Net income} &= \text{Dividends} + \text{Addition to retained earnings} \\ \text{Net income} &= \$2,420 + 4,500 \\ \text{Net income} &= \$6,920 \end{aligned}$$

Net income is also the taxable income, minus the taxable income times the tax rate, or:

$$\begin{aligned} \text{Net income} &= \text{Taxable income} - (\text{Taxable income})(\text{Tax rate}) \\ \text{Net income} &= \text{Taxable income}(1 - \text{Tax rate}) \end{aligned}$$

We can rearrange this equation and solve for the taxable income as:

$$\begin{aligned} \text{Taxable income} &= \text{Net income}/(1 - \text{Tax rate}) \\ \text{Taxable income} &= \$6,920/(1 - .21) \\ \text{Taxable income} &= \$8,759 \end{aligned}$$

EBIT minus interest equals taxable income, so rearranging this relationship, we find:

$$\begin{aligned} \text{EBIT} &= \text{Taxable income} + \text{Interest} \\ \text{EBIT} &= \$8,759 + 2,130 \\ \text{EBIT} &= \$10,889 \end{aligned}$$

Now that we have the EBIT, we know that sales minus costs minus depreciation equals EBIT. Solving this equation for EBIT, we find:

$$\begin{aligned} \text{EBIT} &= \text{Sales} - \text{Costs} - \text{Depreciation} \\ \$10,889 &= \$65,800 - 51,700 - \text{Depreciation} \\ \text{Depreciation} &= \$5,911 \end{aligned}$$

16. We can fill in the balance sheet with the numbers we are given. The balance sheet will be:

<u>Balance Sheet</u>			
Cash	\$207,000	Accounts payable	\$293,000
Accounts receivable	265,000	Notes payable	<u>201,000</u>
Inventory	<u>579,000</u>	Current liabilities	\$494,000
Current assets	\$1,051,000	Long-term debt	<u>1,680,000</u>
		Total liabilities	\$2,174,000
Tangible net fixed assets	\$5,270,000	Common stock	??
Intangible net fixed assets	<u>871,000</u>	Accumulated retained earnings	<u>4,676,000</u>
Total assets	<u>\$7,192,000</u>	Total liabilities & owners' equity	<u>\$7,192,000</u>

Total liabilities and owners' equity is:

$$\text{TL \& OE} = \text{CL} + \text{LTD} + \text{Common stock} + \text{Retained earnings}$$

Solving for this equation for common stock gives us:

$$\begin{aligned}\text{Common stock} &= \$7,192,000 - 4,676,000 - 2,174,000 \\ \text{Common stock} &= \$342,000\end{aligned}$$

17. Owners' equity is the maximum of total assets minus total liabilities, or zero. Although the book value of owners' equity can be negative, the market value of owners' equity cannot be negative, so:

$$\text{Owners' equity} = \text{Max} [(TA - TL), 0]$$

- a. If total assets are \$9,100, the owners' equity is:

$$\begin{aligned}\text{Owners' equity} &= \text{Max} [(\$9,100 - 7,900), 0] \\ \text{Owners' equity} &= \$1,200\end{aligned}$$

- b. If total assets are \$6,900, the owners' equity is:

$$\begin{aligned}\text{Owners' equity} &= \text{Max} [(\$6,900 - 7,900), 0] \\ \text{Owners' equity} &= \$0\end{aligned}$$

18. a. The income statement starts with revenues and subtracts costs to arrive at EBIT. We then subtract interest to get taxable income, and then subtract taxes to arrive at net income. Doing so, we get:

<u>Income Statement</u>	
Sales	\$2,275,000
Cost of goods sold	1,285,000
Admin expenses	535,000
Depreciation	<u>420,000</u>
EBIT	\$ 35,000
Interest	<u>245,000</u>
Taxable income	-\$210,000
Taxes (21%)	<u>0</u>
Net income	<u>-\$210,000</u>

The taxes are zero since we are ignoring any carryback or carryforward provisions.

- b. The operating cash flow for the year was:

$$\begin{aligned}\text{OCF} &= \text{EBIT} + \text{Depreciation} - \text{Taxes} \\ \text{OCF} &= \$35,000 + 420,000 - 0 \\ \text{OCF} &= \$455,000\end{aligned}$$

- c. Net income was negative because of the tax deductibility of depreciation and interest expense. However, the actual cash flow from operations was positive because depreciation is a non-cash expense and interest is a financing, not an operating, expense.

19. A firm can still pay out dividends if net income is negative; it just has to be sure there is sufficient cash flow to make the dividend payments. The assumptions made in the question are:

$$\text{Change in NWC} = \text{Net capital spending} = \text{Net new equity} = 0$$

To find the new long-term debt, we first need to find the cash flow from assets. The cash flow from assets is:

$$\begin{aligned}\text{Cash flow from assets} &= \text{OCF} - \text{Change in NWC} - \text{Net capital spending} \\ \text{Cash flow from assets} &= \$455,000 - 0 - 0 \\ \text{Cash flow from assets} &= \$455,000\end{aligned}$$

We can also find the cash flow to stockholders, which is:

$$\begin{aligned}\text{Cash flow to stockholders} &= \text{Dividends} - \text{Net new equity} \\ \text{Cash flow to stockholders} &= \$370,000 - 0 \\ \text{Cash flow to stockholders} &= \$370,000\end{aligned}$$

Now we can use the cash flow from assets equation to find the cash flow to creditors. Doing so, we get:

$$\begin{aligned}\text{Cash flow from assets} &= \text{Cash flow to creditors} + \text{Cash flow to stockholders} \\ \$455,000 &= \text{Cash flow to creditors} + \$370,000 \\ \text{Cash flow to creditors} &= \$85,000\end{aligned}$$

Now we can use the cash flow to creditors equation to find:

$$\begin{aligned}\text{Cash flow to creditors} &= \text{Interest} - \text{Net new long-term debt} \\ \$85,000 &= \$245,000 - \text{Net new long-term debt} \\ \text{Net new long-term debt} &= \$160,000\end{aligned}$$

20. a. To calculate the OCF, we first need to construct an income statement. The income statement starts with revenues and subtracts costs to arrive at EBIT. We then subtract out interest to get taxable income, and then subtract taxes to arrive at net income. Doing so, we get:

<u>Income Statement</u>	
Sales	\$29,874
Cost of goods sold	21,632
Depreciation	<u>3,470</u>
EBIT	\$ 4,772
Interest	<u>514</u>
Taxable income	\$ 4,258
Taxes (24%)	<u>1,022</u>
Net income	<u>\$ 3,236</u>

- b. The operating cash flow for the year was:

$$\begin{aligned}\text{OCF} &= \text{EBIT} + \text{Depreciation} - \text{Taxes} \\ \text{OCF} &= \$4,772 + 3,470 - 1,022 \\ \text{OCF} &= \$7,220\end{aligned}$$

- c. To calculate the cash flow from assets, we also need the change in net working capital and net capital spending. The change in net working capital was:

$$\begin{aligned}\text{Change in NWC} &= \text{NWC}_{\text{end}} - \text{NWC}_{\text{beg}} \\ \text{Change in NWC} &= (\text{CA}_{\text{end}} - \text{CL}_{\text{end}}) - (\text{CA}_{\text{beg}} - \text{CL}_{\text{beg}}) \\ \text{Change in NWC} &= (\$4,381 - 2,981) - (\$3,557 - 3,110) \\ \text{Change in NWC} &= \$953\end{aligned}$$

And the net capital spending was:

$$\begin{aligned}\text{Net capital spending} &= \text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}} + \text{Depreciation} \\ \text{Net capital spending} &= \$22,987 - 19,872 + 3,470 \\ \text{Net capital spending} &= \$6,585\end{aligned}$$

So, the cash flow from assets was:

$$\begin{aligned}\text{Cash flow from assets} &= \text{OCF} - \text{Change in NWC} - \text{Net capital spending} \\ \text{Cash flow from assets} &= \$7,220 - 953 - 6,585 \\ \text{Cash flow from assets} &= -\$318\end{aligned}$$

The cash flow from assets can be positive or negative since it represents whether the firm raised funds or distributed funds on a net basis. In this problem, even though net income and OCF are positive, the firm invested heavily in fixed assets and net working capital; it had to raise a net \$413 in funds from its stockholders and creditors to make these investments.

- d. The cash flow to creditors was:

$$\begin{aligned}\text{Cash flow to creditors} &= \text{Interest} - \text{Net new LTD} \\ \text{Cash flow to creditors} &= \$514 - 0 \\ \text{Cash flow to creditors} &= \$514\end{aligned}$$

Rearranging the cash flow from assets equation, we can calculate the cash flow to stockholders as:

$$\begin{aligned}\text{Cash flow from assets} &= \text{Cash flow to stockholders} + \text{Cash flow to creditors} \\ -\$318 &= \text{Cash flow to stockholders} + \$514 \\ \text{Cash flow to stockholders} &= -\$832\end{aligned}$$

Now we can use the cash flow to stockholders equation to find the net new equity as:

$$\begin{aligned}\text{Cash flow to stockholders} &= \text{Dividends} - \text{Net new equity} \\ -\$832 &= \$825 - \text{Net new equity} \\ \text{Net new equity} &= \$1,657\end{aligned}$$

The firm had positive earnings in an accounting sense ($\text{NI} > 0$) and had positive cash flow from operations. The firm invested \$953 in new net working capital and \$6,585 in new fixed assets. The firm had to raise \$318 from its stakeholders to support this new investment. It accomplished this by raising \$1,657 in the form of new equity. After paying out \$825 in the form of dividends to shareholders and \$514 in the form of interest to creditors, \$318 was left to meet the firm's cash flow needs for investment.

21. a. To calculate owners' equity, we first need total liabilities and assets. From the balance sheet relationship, we know that total liabilities plus owners' equity is equal to total assets. We are given the necessary information to calculate total assets. Total assets are current assets plus fixed assets, so:

Total assets = Current assets + Fixed assets = Total liabilities and owners' equity

For 2018, we get:

$$\text{Total assets} = \$2,989 + 13,862$$

$$\text{Total assets} = \$16,851$$

Now, we can solve for owners' equity as:

Total liabilities and owners' equity = Current liabilities + Long-term debt + Owners' equity

$$\$16,851 = \$1,291 + 7,161 + \text{Owners' equity}$$

$$\text{Owners' equity} = \$8,399$$

For 2019, we get:

$$\text{Total assets} = \$3,169 + 14,493$$

$$\text{Total assets} = \$17,662$$

Now we can solve for owners' equity as:

Total liabilities and owners' equity = Current liabilities + Long-term debt + Owners' equity

$$\$17,662 = \$1,898 + 8,221 + \text{Owners' equity}$$

$$\text{Owners' equity} = \$7,543$$

b. The change in net working capital was:

$$\text{Change in NWC} = \text{NWC}_{\text{end}} - \text{NWC}_{\text{beg}}$$

$$\text{Change in NWC} = (\text{CA}_{\text{end}} - \text{CL}_{\text{end}}) - (\text{CA}_{\text{beg}} - \text{CL}_{\text{beg}})$$

$$\text{Change in NWC} = (\$3,169 - 1,898) - (\$2,989 - 1,291)$$

$$\text{Change in NWC} = -\$427$$

c. To find the amount of fixed assets the company sold, we need to find the net capital spending.

The net capital spending was:

$$\text{Net capital spending} = \text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}} + \text{Depreciation}$$

$$\text{Net capital spending} = \$14,493 - 13,862 + 3,777$$

$$\text{Net capital spending} = \$4,408$$

To find the fixed assets sold, we can also calculate net capital spending as:

$$\text{Net capital spending} = \text{Fixed assets bought} - \text{Fixed assets sold}$$

$$\$4,408 = \$7,876 - \text{Fixed assets sold}$$

$$\text{Fixed assets sold} = \$3,468$$

To calculate the cash flow from assets, we first need to calculate the operating cash flow. For the operating cash flow, we need the income statement. So, the income statement for the year is:

<u>Income Statement</u>	
Sales	\$44,730
Costs	22,432
Depreciation	<u>3,777</u>
EBIT	\$18,521
Interest	<u>1,032</u>
Taxable income	\$17,489
Taxes (22%)	<u>3,848</u>
Net income	<u>\$ 13,641</u>

Now we can calculate the operating cash flow, which is:

$$\text{OCF} = \text{EBIT} + \text{Depreciation} - \text{Taxes}$$

$$\text{OCF} = \$18,521 + 3,777 - 3,848$$

$$\text{OCF} = \$18,450$$

And the cash flow from assets is:

$$\text{Cash flow from assets} = \text{OCF} - \text{Change in NWC} - \text{Net capital spending}$$

$$\text{Cash flow from assets} = \$18,450 - (-\$427) - 4,408$$

$$\text{Cash flow from assets} = \$14,469$$

- d. To find the cash flow to creditors, we first need to find the net new borrowing. The net new borrowing is the difference between the ending long-term debt and the beginning long-term debt, so:

$$\text{Net new borrowing} = \text{LTD}_{\text{end}} - \text{LTD}_{\text{beg}}$$

$$\text{Net new borrowing} = \$8,221 - 7,161$$

$$\text{Net new borrowing} = \$1,060$$

So, the cash flow to creditors is:

$$\text{Cash flow to creditors} = \text{Interest} - \text{Net new borrowing}$$

$$\text{Cash flow to creditors} = \$1,032 - 1,060$$

$$\text{Cash flow to creditors} = -\$28$$

The net new borrowing is also the difference between the debt issued and the debt retired. We know the amount the company issued during the year, so we can find the amount the company retired. The amount of debt retired was:

$$\text{Net new borrowing} = \text{Debt issued} - \text{Debt retired}$$

$$\$1,060 = \$2,371 - \text{Debt retired}$$

$$\text{Debt retired} = \$1,311$$

22. To construct the cash flow identity, we will begin with cash flow from assets. Cash flow from assets is:

$$\text{Cash flow from assets} = \text{OCF} - \text{Change in NWC} - \text{Net capital spending}$$

So, the operating cash flow is:

$$\text{OCF} = \text{EBIT} + \text{Depreciation} - \text{Taxes}$$

$$\text{OCF} = \$81,741 + 72,489 - 14,028$$

$$\text{OCF} = \$140,202$$

Next, we will calculate the change in net working capital, which is:

$$\text{Change in NWC} = \text{NWC}_{\text{end}} - \text{NWC}_{\text{beg}}$$

$$\text{Change in NWC} = (\text{CA}_{\text{end}} - \text{CL}_{\text{end}}) - (\text{CA}_{\text{beg}} - \text{CL}_{\text{beg}})$$

$$\text{Change in NWC} = (\$77,250 - 35,834) - (\$61,240 - 31,870)$$

$$\text{Change in NWC} = \$12,046$$

Now, we can calculate the capital spending. The capital spending is:

$$\text{Net capital spending} = \text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}} + \text{Depreciation}$$

$$\text{Net capital spending} = \$539,679 - 457,454 + 72,489$$

$$\text{Net capital spending} = \$154,714$$

Now, we have the cash flow from assets, which is:

$$\text{Cash flow from assets} = \text{OCF} - \text{Change in NWC} - \text{Net capital spending}$$

$$\text{Cash flow from assets} = \$140,202 - 12,046 - 154,714$$

$$\text{Cash flow from assets} = -\$26,558$$

The company's assets generated an outflow of \$26,558. The cash flow from operations was \$140,202, and the company spent \$12,046 on net working capital and \$154,714 on fixed assets.

The cash flow to creditors is:

$$\text{Cash flow to creditors} = \text{Interest paid} - \text{New long-term debt}$$

$$\text{Cash flow to creditors} = \text{Interest paid} - (\text{Long-term debt}_{\text{end}} - \text{Long-term debt}_{\text{beg}})$$

$$\text{Cash flow to creditors} = \$25,630 - (\$201,900 - 181,000)$$

$$\text{Cash flow to creditors} = \$4,730$$

The cash flow to stockholders is a little trickier in this problem. First, we need to calculate the new equity sold. The equity balance increased during the year. The only way to increase the equity balance is through retained earnings or selling equity. To calculate the new equity sold, we can use the following equation:

$$\text{New equity} = \text{Ending equity} - \text{Beginning equity} - \text{Addition to retained earnings}$$

$$\text{New equity} = \$379,195 - 305,824 - 27,883$$

$$\text{New equity} = \$45,488$$

What happened was the equity account increased by \$73,371. Of this increase, \$27,883 came from addition to retained earnings, so the remainder must have been the sale of new equity. Now we can calculate the cash flow to stockholders as:

Cash flow to stockholders = Dividends paid – Net new equity

Cash flow to stockholders = \$14,200 – 45,488

Cash flow to stockholders = –\$31,288

The company paid \$4,730 to creditors and raised \$31,288 from stockholders.

Finally, the cash flow identity is:

Cash flow from assets = Cash flow to creditors + Cash flow to stockholders
 –\$26,558 = \$4,730 + –\$31,288

The cash flow identity balances, which is what we expect.

Challenge

23. Net capital spending = $NFA_{end} - NFA_{beg} + \text{Depreciation}$
 = $(NFA_{end} - NFA_{beg}) + (\text{Depreciation} + AD_{beg}) - AD_{beg}$
 = $(NFA_{end} - NFA_{beg}) + AD_{end} - AD_{beg}$
 = $(NFA_{end} + AD_{end}) - (NFA_{beg} + AD_{beg})$
 = $FA_{end} - FA_{beg}$