Solutions for Essentials of Corporate Finance 10th Edition by Ross

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Essentials of Corporate Finance

Ross, Westerfield, and Jordan
10th edition

05/07/2019

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CHAPTER 1
INTRODUCTION TO CORPORATE FINANCE

Answers to Concepts Review and Critical Thinking Questions

1. Capital budgeting (deciding on whether to expand a manufacturing plant), capital structure (deciding whether to issue new equity and use the proceeds to retire outstanding debt), and working capital management (modifying the firm's credit collection policy with its customers).

2. Disadvantages: unlimited liability, limited life, difficulty in transferring ownership, difficulty in raising capital funds. Some advantages: simpler, less regulation, the owners are also the managers, sometimes personal tax rates are better than corporate tax rates.

3. The primary disadvantage of the corporate form is the double taxation to shareholders of distributed earnings and dividends. Some advantages include: limited liability, ease of transferability, ability to raise capital, and unlimited life.

4. The treasurer's office and the controller's office are the two primary organizational groups that report directly to the chief financial officer. The controller's office handles cost and financial accounting, tax management, and management information systems. The treasurer's office is responsible for cash and credit management, capital budgeting, and financial planning. Therefore, the study of corporate finance is concentrated within the functions of the treasurer's office.

5. To maximize the current market value (share price) of the equity of the firm (whether it's publicly traded or not).

6. In the corporate form of ownership, the shareholders are the owners of the firm. The shareholders elect the directors of the corporation, who in turn appoint the firm's management. This separation of ownership from control in the corporate form of organization is what causes agency problems to exist. Management may act in its own or someone else's best interests, rather than those of the shareholders. If such events occur, they may contradict the goal of maximizing the share price of the equity of the firm.

7. A primary market transaction.

8. In auction markets like the NYSE, brokers and agents meet at a physical location (the exchange) to buy and sell their assets. Dealer markets like NASDAQ represent dealers operating in dispersed locales who buy and sell assets themselves, usually communicating with other dealers electronically or literally over the counter.

9. Since such organizations frequently pursue social or political missions, many different goals are conceivable. One goal that is often cited is revenue minimization; i.e., providing their goods and

services to society at the lowest possible cost. Another approach might be to observe that even a not-for-profit business has equity. Thus, an appropriate goal would be to maximize the value of the equity.

10. An argument can be made either way. At one extreme, we could argue that in a market economy, all of these things are priced. This implies an optimal level of ethical and/or illegal behavior and the framework of stock valuation explicitly includes these. At the other extreme, we could argue that these are non-economic phenomena and are best handled through the political process. The following is a classic (and highly relevant) thought question that illustrates this debate: "A firm has estimated that the cost of improving the safety of one of its products is $30 million. However, the firm believes that improving the safety of the product will only save $20 million in product liability claims. What should the firm do?"

11. The goal will be the same, but the best course of action toward that goal may require adjustments due to different social, political, and economic climates.

12. The goal of management should be to maximize the share price for the current shareholders. If management believes that it can improve the profitability of the firm so that the share price will exceed $35, then they should fight the offer from the outside company. If management believes that this bidder or other unidentified bidders will actually pay more than $35 per share to acquire the company, then they should still fight the offer. However, if the current management cannot increase the value of the firm beyond the bid price, and no other higher bids come in, then management is not acting in the interests of the shareholders by fighting the offer. Since current managers often lose their jobs when the corporation is acquired, poorly monitored managers have an incentive to fight corporate takeovers in situations such as this.

13. We would expect agency problems to be less severe in other countries, primarily due to the relatively small percentage of individual ownership. Fewer individual owners should reduce the number of diverse opinions concerning corporate goals. The high percentage of institutional ownership might lead to a higher degree of agreement between owners and managers on decisions concerning risky projects. In addition, institutions may be able to implement more effective monitoring mechanisms than can individual owners, given institutions' deeper resources and experiences with their own management. The increase in institutional ownership of stock in the United States and the growing activism of these large shareholder groups may lead to a reduction in agency problems for U.S. corporations and a more efficient market for corporate control.

14. How much is too much? Who is worth more, Michael Rapino or LeBron James? The simplest answer is that there is a market for executives just as there is for all types of labor. Executive compensation is the price that clears the market. The same is true for athletes and performers. Having said that, one aspect of executive compensation deserves comment. A primary reason executive compensation has grown so dramatically is that companies have increasingly moved to stock-based compensation. Such movement is obviously consistent with the attempt to better align stockholder and management interests. In recent years, stock prices have soared, so management has cleaned up. It is sometimes argued that much of this reward is due to rising stock prices in general, not managerial performance. Perhaps in the future, executive compensation will be designed to reward only differential performance, i.e., stock price increases in excess of general market increases.

15. The biggest reason that a company would "go dark" is because of the increased audit costs associated with Sarbanes-Oxley compliance. A company should always do a cost-benefit analysis, and it may be the case that the costs of complying with Sarbox outweigh the benefits. Of course, the company could always be trying to hide financial issues of the company! This is also one of the costs of going dark: Investors surely believe that some companies are going dark to avoid the increased scrutiny from Sarbox. This taints other companies that go dark just to avoid compliance costs. This is similar to the lemon problem with used automobiles: Buyers tend to underpay because they know a certain percentage of used cars are lemons. So, investors will tend to pay less for the company stock than they otherwise would. It is important to note that even if the company delists, its stock is still likely traded, but on the over-the-counter market pink sheets rather than on an organized exchange. This adds another cost since the stock is likely to be less liquid now. All else the same, investors pay less for an asset with less liquidity. Overall, the cost to the company is likely a reduced market value. Whether delisting is good or bad for investors depends on the individual circumstances of the company. It is also important to remember that there are already many small companies that file only limited financial information.

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	9,830	Long-term debt	4,520
		Owners' equity	5,690
Total assets	$11,920	Total liabilities and owners' equity	$11,920

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:

Owners' equity = Total liabilities and owners' equity – Current liabilities – Long-term debt
Owners' equity = $11,920 – 1,710 – 4,520
Owners' equity = $5,690

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

NWC = Current assets – Current liabilities
NWC = $2,090 – 1,710
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:

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

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

Net income = Dividends + Addition to retained earnings
Addition to retained earnings = $154,050 – 68,000
Addition to retained earnings = $86,050

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

EPS = Net income/Shares outstanding
EPS = $154,050/35,000
EPS = $4.40 per share

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

DPS = Dividends/Shares outstanding
DPS = $68,000/35,000
DPS = $1.94 per share

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:

Taxes = .10($9,525) + .12($29,175) + .22($43,800) + .24($75,000) + .32($31,500)
Taxes = $42,170

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

Average tax rate = Total tax/Taxable income
Average tax rate = $42,170/$189,000
Average tax rate = .2231, or 22.31%

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:

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

Now we can calculate the OCF, which is:

OCF = EBIT + Depreciation – Taxes
OCF = $23,230 + 2,550 – 4,490
OCF = $21,290

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

Net capital spending = $NFA_{end} – NFA_{beg}$ + Depreciation
Net capital spending = $2,137,000 – 1,945,000 + 335,000
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:

Change in NWC = $NWC_{end} – NWC_{beg}$
Change in NWC = $(CA_{end} – CL_{end}) – (CA_{beg} – CL_{beg})$
Change in NWC = ($1,675 – 1,290) – ($1,490 – 1,210)
Change in NWC = $105

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

Cash flow to creditors = Interest paid – Net new borrowing
Cash flow to creditors = Interest paid – $(LTD_{end} – LTD_{beg})$
Cash flow to creditors = $97,500 – ($1,470,000 – 1,350,000)
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.)

Cash flow to stockholders = Dividends paid – Net new equity
Cash flow to stockholders = Dividends paid – $[(Common_{end} + APIS_{end}) – (Common_{beg} + APIS_{beg})]$
Cash flow to stockholders = $149,500 – [($137,000 + 2,568,000) – ($120,000 + 2,289,000)]
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:

Cash flow from assets = Cash flow to creditors + Cash flow to stockholders
Cash flow from assets = –$22,500 – 146,500
Cash flow from assets = –$169,000

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:

Cash flow from assets = OCF – Change in NWC – Net capital spending
–$169,000 = OCF – (–$94,300) – (745,000)
OCF = –$169,000 – 94,300 + 745,000
OCF = $481,700

Intermediate

13. To find the book value of current assets, we use: NWC = CA – CL. Rearranging to solve for current assets, we get:

CA = NWC + 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	= $4,190,000	Total	= $5,550,000

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:

Income Statement	
Sales	$178,000
Costs	103,600
Other Expenses	5,100
Depreciation	12,100
EBIT	$57,200
Interest	8,900
Taxable income	$48,300
Taxes	12,705
Net income	$35,595

Dividends	$10,143
Addition to retained earnings	25,452

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

Net income = Dividends + Addition to retained earnings
Addition to retained earnings = $35,595 – 10,143
Addition to retained earnings = $25,452

So, the operating cash flow is:

OCF = EBIT + Depreciation – Taxes
OCF = $57,200 + 12,100 – 12,705
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:

Cash flow to creditors = Interest paid – Net new borrowing
Cash flow to creditors = $8,900 – (–$4,000)
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:

Cash flow to stockholders = Dividends paid – Net new equity
Cash flow to stockholders = $10,143 – 2,900
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:

Cash flow from assets = Cash flow to creditors + Cash flow to stockholders
Cash flow from assets = $12,900 + 7,243
Cash flow from assets = $20,143

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

Net capital spending = Depreciation + Increase in fixed assets
Net capital spending = $12,100 + 23,140
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:

Cash flow from assets = OCF – Change in NWC – Net capital spending
$20,143 = $56,595 – Change in NWC – $35,240
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:

Net income = Dividends + Addition to retained earnings
Net income = $2,420 + 4,500
Net income = $6,920

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

Net income = Taxable income – (Taxable income)(Tax rate)
Net income = Taxable income(1 – Tax rate)

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

Taxable income = Net income/(1 – Tax rate)
Taxable income = $6,920/(1 – .21)
Taxable income = $8,759

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

EBIT = Taxable income + Interest
EBIT = $8,759 + 2,130
EBIT = $10,889

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

EBIT = Sales – Costs – Depreciation
$10,889 = $65,800 – 51,700 – Depreciation
Depreciation = $5,911

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

Balance Sheet

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

Total liabilities and owners' equity is:

TL & OE = CL + LTD + Common stock + Retained earnings

Solving for this equation for common stock gives us:

Common stock = $7,192,000 – 4,676,000 – 2,174,000
Common stock = $342,000

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:

Owners' equity = Max [(TA – TL), 0]

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

Owners' equity = Max[($9,100 – 7,900), 0]
Owners' equity = $1,200

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

Owners' equity = Max[($6,900 – 7,900), 0]
Owners' equity = $0

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:

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

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

b. The operating cash flow for the year was:

OCF = EBIT + Depreciation – Taxes
OCF = $35,000 + 420,000 – 0
OCF = $455,000

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:

Change in NWC = Net capital spending = 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:

Cash flow from assets = OCF – Change in NWC – Net capital spending
Cash flow from assets = $455,000 – 0 – 0
Cash flow from assets = $455,000

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

Cash flow to stockholders = Dividends – Net new equity
Cash flow to stockholders = $370,000 – 0
Cash flow to stockholders = $370,000

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

Cash flow from assets = Cash flow to creditors + Cash flow to stockholders
$455,000 = Cash flow to creditors + $370,000
Cash flow to creditors = $85,000

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

Cash flow to creditors = Interest – Net new long-term debt
$85,000 = $245,000 – Net new long-term debt
Net new long-term debt = $160,000

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:

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

b. The operating cash flow for the year was:

OCF = EBIT + Depreciation – Taxes
OCF = $4,772 + 3,470 – 1,022
OCF = $7,220

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:

Change in NWC = $NWC_{end} - NWC_{beg}$
Change in NWC = $(CA_{end} - CL_{end}) - (CA_{beg} - CL_{beg})$
Change in NWC = ($4,381 – 2,981) – ($3,557 – 3,110)
Change in NWC = $953

And the net capital spending was:

Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
Net capital spending = $22,987 – 19,872 + 3,470
Net capital spending = $6,585

So, the cash flow from assets was:

Cash flow from assets = OCF – Change in NWC – Net capital spending
Cash flow from assets = $7,220 – 953 – 6,585
Cash flow from assets = –$318

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:

Cash flow to creditors = Interest – Net new LTD
Cash flow to creditors = $514 – 0
Cash flow to creditors = $514

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

Cash flow from assets = Cash flow to stockholders + Cash flow to creditors
–$318 = Cash flow to stockholders + $514
Cash flow to stockholders = –$832

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

Cash flow to stockholders = Dividends – Net new equity
–$832 = $825 – Net new equity
Net new equity = $1,657

The firm had positive earnings in an accounting sense (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:

Total assets = $2,989 + 13,862
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 + Owners' equity
Owners' equity = $8,399

For 2019, we get:

Total assets = $3,169 + 14,493
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 + Owners' equity
Owners' equity = $7,543

b. The change in net working capital was:

Change in NWC = $NWC_{end} - NWC_{beg}$
Change in NWC = $(CA_{end} - CL_{end}) - (CA_{beg} - CL_{beg})$
Change in NWC = ($3,169 – 1,898) – ($2,989 – 1,291)
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:

Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
Net capital spending = $14,493 – 13,862 + 3,777
Net capital spending = $4,408

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

Net capital spending = Fixed assets bought – Fixed assets sold
$4,408 = $7,876 – Fixed assets sold
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:

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

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

OCF = EBIT + Depreciation – Taxes
OCF = $18,521 + 3,777 – 3,848
OCF = $18,450

And the cash flow from assets is:

Cash flow from assets = OCF – Change in NWC – Net capital spending
Cash flow from assets = $18,450 – (–$427) – 4,408
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:

Net new borrowing = $LTD_{end} – LTD_{beg}$
Net new borrowing = $8,221– 7,161
Net new borrowing = $1,060

So, the cash flow to creditors is:

Cash flow to creditors = Interest – Net new borrowing
Cash flow to creditors = $1,032 – 1,060
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:

Net new borrowing = Debt issued – Debt retired
$1,060 = $2,371 – Debt retired
Debt retired = $1,311

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

Cash flow from assets = OCF – Change in NWC – Net capital spending

So, the operating cash flow is:

OCF = EBIT + Depreciation – Taxes
OCF = $81,741 + 72,489 – 14,028
OCF = $140,202

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

Change in NWC = $NWC_{end} - NWC_{beg}$
Change in NWC = $(CA_{end} - CL_{end}) - (CA_{beg} - CL_{beg})$
Change in NWC = ($77,250 – 35,834) – ($61,240 – 31,870)
Change in NWC = $12,046

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

Net capital spending = $NFA_{end} - NFA_{beg}$ + Depreciation
Net capital spending = $539,679 – 457,454 + 72,489
Net capital spending = $154,714

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

Cash flow from assets = OCF – Change in NWC – Net capital spending
Cash flow from assets = $140,202 – 12,046 – 154,714
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:

Cash flow to creditors = Interest paid – New long-term debt
Cash flow to creditors = Interest paid – (Long-term $debt_{end}$ – Long-term $debt_{beg}$)
Cash flow to creditors = $25,630 – ($201,900 – 181,000)
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:

New equity = Ending equity – Beginning equity – Addition to retained earnings
New equity = $379,195 – 305,824 – 27,883
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 $= NFA_{end} - NFA_{beg} + \text{Depreciation}$
$= (NFA_{end} - NFA_{beg}) + (\text{Depreciation} + AD_{beg}) - AD_{beg}$
$= (NFA_{end} - NFA_{beg}) + AD_{end} - AD_{beg}$
$= (NFA_{end} + AD_{end}) - (NFA_{beg} + AD_{beg})$
$= FA_{end} - FA_{beg}$

CHAPTER 3
WORKING WITH FINANCIAL STATEMENTS

Answers to Concepts Review and Critical Thinking Questions

1. *a.* If inventory is purchased with cash, then there is no change in the current ratio. If inventory is purchased on credit, then there is a decrease in the current ratio if it was initially greater than 1.0.

b. Reducing accounts payable with cash increases the current ratio if it was initially greater than 1.0.

c. Reducing short-term debt with cash increases the current ratio if it was initially greater than 1.0.

d. As long-term debt approaches maturity, the principal repayment and the remaining interest expense become current liabilities. Thus, if debt is paid off with cash, the current ratio increases if it was initially greater than 1.0. If the debt has not yet become a current liability, then paying it off will reduce the current ratio since current liabilities are unaffected.

e. Reduction of accounts receivables and an increase in cash leaves the current ratio unchanged.

f. Inventory sold at cost reduces inventory and raises cash, so the current ratio is unchanged.

g. Inventory sold for a profit raises cash in excess of the inventory recorded at cost, so the current ratio increases.

2. The firm has increased inventory relative to other current assets; therefore, assuming current liability levels remain mostly unchanged, liquidity has potentially decreased.

3. A current ratio of .50 means that the firm has twice as much in current liabilities as it does in current assets; the firm potentially has poor liquidity. If pressed by its short-term creditors and suppliers for immediate payment, the firm might have a difficult time meeting its obligations. A current ratio of 1.50 means the firm has 50% more current assets than it does current liabilities. This probably represents an improvement in liquidity; short-term obligations can generally be met completely with a safety factor built in. A current ratio of 15.0, however, might be excessive. Any excess funds sitting in current assets generally earn little or no return. These excess funds might be put to better use by investing in productive long-term assets or distributing the funds to shareholders.

4. *a.* Quick ratio provides a measure of the short-term liquidity of the firm, after removing the effects of inventory, generally the least liquid of the firm's current assets.

b. Cash ratio represents the ability of the firm to completely pay off its current liabilities balance with its most liquid asset (cash).

c. The capital intensity ratio tells us the dollar amount investment in assets needed to generate one dollar in sales.

d. Total asset turnover measures how much in sales is generated by each dollar of firm assets.

e. Equity multiplier represents the degree of leverage for an equity investor of the firm; it measures the dollar worth of firm assets each equity dollar has a claim to.

f. Times interest earned ratio provides a relative measure of how well the firm's operating earnings can cover current interest obligations.

g. Profit margin is the accounting measure of bottom-line profit per dollar of sales.

h. Return on assets is a measure of bottom-line profit per dollar of total assets.

i. Return on equity is a measure of bottom-line profit per dollar of equity.

j. Price-earnings ratio reflects how much value per share the market places on a dollar of accounting earnings for a firm.

5. Common size financial statements express all balance sheet accounts as a percentage of total assets and all income statement accounts as a percentage of total sales. Using these percentage values rather than nominal dollar values facilitates comparisons between firms of different sizes or business types.

6. Peer group analysis involves comparing the financial ratios and operating performance of a particular firm to a set of peer group firms in the same industry or line of business. Comparing a firm to its peers allows the financial manager to evaluate whether some aspects of the firm's operations, finances, or investment activities are out of line with the norm, thereby providing some guidance on appropriate actions to take to adjust these ratios, if appropriate. An aspirant group would be a set of firms whose performance the company in question would like to emulate. The financial manager often uses the financial ratios of aspirant groups as the target ratios for his or her firm; some managers are evaluated by how well they match the performance of an identified aspirant group.

7. Return on equity is probably the most important accounting ratio that measures the bottom-line performance of the firm with respect to the equity shareholders. The DuPont identity emphasizes the role of a firm's profitability, asset utilization efficiency, and financial leverage in achieving a ROE figure. For example, a firm with ROE of 20% would seem to be doing well, but this figure may be misleading if it were a marginally profitable (low profit margin) and highly levered (high equity multiplier). If the firm's margins were to erode slightly, the ROE would be heavily impacted.

8. The book-to-bill ratio is intended to measure whether demand is growing or falling. It is closely followed because it is a barometer for the entire high-tech industry where levels of revenues and earnings have been relatively volatile.

9. If a company is growing by opening new stores, then presumably total revenues would be rising. Comparing total sales at two different points in time might be misleading. Same-store sales control for this by only looking at revenues of stores open within a specific period.

10. *a.* For an electric utility such as Con Ed, expressing costs on a per kilowatt-hour basis would be a way of comparing costs with other utilities of different sizes.

b. For a retailer such as JC Penney, expressing sales on a per square foot basis would be useful in comparing revenue production against other retailers.

c. For an airline such as Delta, expressing costs on a per passenger mile basis allows for comparisons with other airlines by examining how much it costs to fly one passenger one mile.

d. For an on-line service such as Google or Yahoo!, using a per web hit basis for costs would allow for comparisons with similar services.

e. For a hospital such as Holy Cross, revenues and costs expressed on a per bed basis would be useful.

f. For a college textbook publisher such as McGraw-Hill Higher Education, the leading publisher of finance textbooks for the college market, the obvious standardization would be per book sold.

11. As with any ratio analysis, the ratios themselves do not necessarily indicate a problem, but indicate that something is different, and it is up to us to determine if a problem exists. If the cost of goods sold as a percentage of sales is increasing, we would expect that EBIT as a percentage of sales would decrease, all else constant. An increase in the cost of goods sold as a percentage of sales occurs because the cost of raw materials or other inventory is increasing at a faster rate than the sales price.

This may be a bad sign since the contribution of each sales dollar to net income and cash flow is lower. However, when a new product, for example, the HDTV, enters the market, the price of one unit will often be high relative to the cost of goods sold per unit, and demand, therefore sales, will initially be small. As the product market becomes more developed, price of the product generally drops, and sales increase as more competition enters the market. In this case, the increase in cost of goods sold as a percentage of sales is to be expected. The maker or seller expects to boost sales at a faster rate than its cost of goods sold increases. In this case, a good practice would be to examine the common-size income statements to see if this is an industry-wide occurrence.

12. If we assume that the cause is negative, the two reasons for the trend of increasing cost of goods sold as a percentage of sales are that costs are becoming too high or the sales price is not increasing fast enough. If the cause is an increase in the cost of goods sold, the manager should look at possible actions to control costs. If costs can be lowered by seeking lower cost suppliers of similar or higher quality, the cost of goods sold as a percentage of sales should decrease. Another alternative is to increase the sales price to cover the increase in the cost of goods sold. Depending on the industry, this may be difficult or impossible. For example, if the company sells most of its products under a long-term contract that has a fixed price, it may not be able to increase the sales price and will be forced to look for other cost-cutting possibilities. Additionally, if the market is competitive, the company might also be unable to increase the sales price.

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. To find the current assets, we must use the net working capital equation. Doing so, we find:

NWC = Current assets – Current liabilities
$2,135 = Current assets – $5,320
Current assets = $7,455

Now, use this number to calculate the current ratio and the quick ratio. The current ratio is:

Current ratio = Current assets/Current liabilities
Current ratio = $7,455/$5,320
Current ratio = 1.40 times

And the quick ratio is:

Quick ratio = (Current assets – Inventory)/Current liabilities
Quick ratio = ($7,455 – 2,470)/$5,320
Quick ratio = .94 times

2. To find the return on assets and return on equity, we need net income. We can calculate the net income using the profit margin. Doing so, we find the net income is:

Profit margin = Net income/Sales
.06 = Net income/$15,200,000
Net income = $912,000

Now we can calculate the return on assets as:

ROA = Net income/Total assets
ROA = $912,000/$9,800,000
ROA = .0931, or 9.31%

We do not have the equity for the company, but we know that equity must be equal to total assets minus total debt, so the ROE is:

ROE = Net income/(Total assets – Total debt)
ROE = $912,000/($9,800,000 – 3,700,000)
ROE = .1495, or 14.95%

3. The receivables turnover for the company was:

Receivables turnover = Credit sales/Receivables
Receivables turnover = $6,787,626/$527,164
Receivables turnover = 12.88 times

Using the receivables turnover, we can calculate the days' sales in receivables as:

Days' sales in receivables = 365 days/Receivables turnover
Days' sales in receivables = 365 days/12.88
Days' sales in receivables = 28.35 days

The average collection period, which is the same as the days' sales in receivables, was 28.35 days.

4. The inventory turnover for the company was:

Inventory turnover = COGS/Inventory
Inventory turnover = $9,758,345/$625,817
Inventory turnover = 15.59 times

Using the inventory turnover, we can calculate the days' sales in inventory as:

Days' sales in inventory = 365 days/Inventory turnover
Days' sales in inventory = 365 days/15.59
Days' sales in inventory = 23.41 days

On average, a unit of inventory sat on the shelf 23.41 days before it was sold.

5. To find the debt-equity ratio using the total debt ratio, we need to rearrange the total debt ratio equation. We must realize that the total assets are equal to total debt plus total equity. Doing so, we find:

Total debt ratio = Total debt/Total assets
.43 = Total debt/(Total debt + Total equity)
.57(Total debt) = .43(Total equity)
Total debt/Total equity = .43/.57
Debt-equity ratio = .75

And the equity multiplier is one plus the debt-equity ratio, so:

Equity multiplier = 1 + D/E
Equity multiplier = 1 + .75
Equity multiplier = 1.75

6. We need to calculate the net income before we calculate the earnings per share. The sum of dividends and addition to retained earnings must equal net income, so net income must have been:

Net income = Addition to retained earnings + Dividends
Net income = $486,000 + 175,000
Net income = $661,000

So, the earnings per share were:

EPS = Net income/Shares outstanding
EPS = $661,000/335,000
EPS = $1.97 per share

The dividends per share were:

Dividends per share = Total dividends/Shares outstanding
Dividends per share = $175,000/335,000
Dividends per share = $.52 per share

The book value per share was:

Book value per share = Total equity/Shares outstanding
Book value per share = $6,825,000/335,000
Book value per share = $20.37 per share

The market-to-book ratio is:

Market-to-book ratio = Share price/Book value per share
Market-to-book ratio = $46/$20.37
Market-to-book ratio = 2.26 times

The PE ratio is:

PE ratio = Share price/EPS
PE ratio = $46/$1.97
PE ratio = 23.31 times

Sales per share are:

Sales per share = Total sales/Shares outstanding
Sales per share = $15,400,000/335,000
Sales per share = $45.97

The P/S ratio is:

P/S ratio = Share price/Sales per share
P/S ratio = $46/$45.97
P/S ratio = 1.00 times

7. With the information given, we must use the DuPont identity to calculate return on equity. Doing so, we find:

ROE = (Profit margin)(Total asset turnover)(Equity multiplier)
ROE = (.059)(1.45)(1.67)
ROE = .1429, or 14.29%

8. We can use the DuPont identity and solve for the equity multiplier. With the equity multiplier we can find the debt-equity ratio. Doing so we find:

ROE = (Profit margin)(Total asset turnover)(Equity multiplier)
.1430 = (.064)(1.73)(Equity multiplier)
Equity multiplier = 1.29

Now, using the equation for the equity multiplier, we get:

Equity multiplier = 1 + Debt-equity ratio
1.29 = 1 + Debt-equity ratio
Debt-equity ratio = .29

9. To find the days' sales in payables, we first need to find the payables turnover. The payables turnover was:

Payables turnover = Cost of goods sold/Accounts payable
Payables turnover = $95,318/$22,816
Payables turnover = 4.18 times

Now, we can use the payables turnover to find the days' sales in payables as:

Days' sales in payables = 365 days/Payables turnover
Days' sales in payables = 365 days/4.18
Days' sales in payables = 87.37 days

The company left its bills to suppliers outstanding for 87.37 days, on average. A large value for this ratio could imply that either (1) the company is having liquidity problems, making it difficult to pay off its short-term obligations, or (2) that the company has successfully negotiated lenient credit terms from its suppliers.

10. With the information provided, we need to calculate the return on equity using an extended return on equity equation. We first need to find the equity multiplier, which is:

Equity multiplier = 1 + Debt-equity ratio
Equity multiplier = 1 + .65
Equity multiplier = 1.65

Now we can calculate the return on equity as:

ROE = (ROA)(Equity multiplier)
ROE = .072(1.65)
ROE = .1188, or 11.88%

The return on equity equation we used was an abbreviated version of the DuPont identity. If we multiply the profit margin and total asset turnover ratios from the DuPont identity, we get:

(Net income/Sales)(Sales/Total assets) = Net income/Total assets = ROA

With the return on equity, we can calculate the net income as:

ROE = Net income/Total equity
.1188 = Net income/$815,000
Net income = $96,822

11. To find the internal growth rate, we need the plowback, or retention, ratio. The plowback ratio is:

$b = 1 - .25$
$b = .75$

Now, we can use the internal growth rate equation to find:

Internal growth rate = [(ROA)(*b*)]/[1 – (ROA)(*b*)]
Internal growth rate = [.078(.75)]/[1 – .078(.75)]
Internal growth rate = .0621, or 6.21%

12. To find the sustainable growth rate we need the plowback, or retention, ratio. The plowback ratio is:

$b = 1 - .20$
$b = .80$

Now, we can use the sustainable growth rate equation to find:

Sustainable growth rate = [(ROE)(*b*)]/[1 – (ROE)(*b*)]
Sustainable growth rate = [.146(.80)]/[1 – .146(.80)]
Sustainable growth rate = .1322, or 13.22%

13. We need the return on equity to calculate the sustainable growth rate. To calculate return on equity, we need to realize that the total asset turnover is the inverse of the capital intensity ratio and the equity multiplier is one plus the debt-equity ratio. So, the return on equity is:

ROE = (Profit margin)(Total asset turnover)(Equity multiplier)
ROE = (.067)(1/.45)(1 + .35)
ROE = .2010, or 20.10%

Next, we need the plowback ratio. The plowback ratio is one minus the payout ratio. We can calculate the payout ratio as the dividends divided by net income, so the plowback ratio is:

$b = 1 – (\$65{,}000/\$135{,}000)$
$b = .52$

Now we can use the sustainable growth rate equation to find:

Sustainable growth rate = [(ROE)(b)]/[1 – (ROE)(b)]
Sustainable growth rate = [.2010(.52)]/[1 – .2010(.52)]
Sustainable growth rate = .1163, or 11.63%

14. We need the return on equity to calculate the sustainable growth rate. Using the DuPont identity, the return on equity is:

ROE = (Profit margin)(Total asset turnover)(Equity multiplier)
ROE = (.059)(2.95)(1.31)
ROE = .2280, or 22.80%

To find the sustainable growth rate, we need the plowback, or retention, ratio. The plowback ratio is:

$b = 1 – .40$
$b = .60$

Now, we can use the sustainable growth rate equation to find:

Sustainable growth rate = [(ROE)(b)]/[1 – (ROE)(b)]
Sustainable growth rate = [.2280(.60)]/[1 – .2280(.60)]
Sustainable growth rate = .1585, or 15.85%

15. To calculate the common-size balance sheet, we divide each asset account by total assets, and each liability and equity account by total liabilities and equity. For example, the common-size cash percentage for 2018 is:

Cash percentage = Cash/Total assets
Cash percentage = \$21,182/\$968,732
Cash percentage = .0219, or 2.19%

Case Solutions

Essentials of Corporate Finance

Ross, Westerfield, and Jordan
10th edition

05/07/2019

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CHAPTER 1
THE McGEE CAKE COMPANY

1. The advantages to an LLC are: 1) Reduction of personal liability. A sole proprietor has unlimited liability, which can include the potential loss of all personal assets. 2) Taxes. Forming an LLC may mean that more expenses can be considered business expenses and be deducted from the company's income. 3) Improved credibility. The business may have increased credibility in the business world compared to a sole proprietorship 4) Ability to attract investment. Corporations, even LLCs, can raise capital through the sale of equity. 5) Continuous life. Sole proprietorships have a limited life, while corporations have a potentially perpetual life. 6) Transfer of ownership. It is easier to transfer ownership in a corporation through the sale of stock.

The biggest disadvantage is the potential cost, although the cost of forming an LLC can be relatively small. There are also other potential costs, including more expensive record-keeping.

2. Forming a corporation has the same advantages as forming an LLC, but the costs are likely to be higher.

3. As a small company, changing to an LLC is probably the most advantageous decision at the current time. If the company grows, and Doc and Lyn are willing to sell more equity ownership, the company can reorganize as a corporation at a later date. Additionally, forming an LLC is likely to be less expensive than forming a corporation.

CHAPTER 2
CASH FLOWS AND FINANCIAL STATEMENTS AT SUNSET BOARDS

Below are the financial statements that you are asked to prepare.

1. The income statement for each year will look like this:

Income statement

	2018	*2019*
Sales	$440,122	$536,483
Cost of goods sold	224,359	283,281
Selling & administrative	44,121	57,586
Depreciation	63,334	71,584
EBIT	$108,308	$124,032
Interest	13,783	15,780
EBT	$94,525	$108,252
Taxes	19,850	22,733
Net income	$74,675	$85,519
Dividends	$37,337	$42,760
Addition to retained earnings	37,337	42,760

2. The balance sheet for each year will be:

Balance sheet as of Dec. 31, 2018

Cash	$32,372	Accounts payable	$57,220
Accounts receivable	22,939	Notes payable	26,079
Inventory	48,272	Current liabilities	$83,299
Current assets	$103,583		
		Long-term debt	$141,040
Net fixed assets	$279,419	Owners' equity	$158,663
Total assets	$383,002	Total liab. & equity	$383,002

In the first year, equity is not given. Therefore, we must calculate equity as a plug variable. Since total liabilities & equity is equal to total assets, equity can be calculated as:

Equity = $383,002 – 83,299 – 141,040
Equity = $158,663

Balance sheet as of Dec. 31, 2019

Cash	$34,394	Accounts payable	$63,479
Accounts receivable	29,755	Notes payable	28,474
Inventory	66,244	Current liabilities	$91,953
Current assets	$130,393		
		Long-term debt	$158,368
Net fixed assets	$348,508	Owners' equity	$228,580
Total assets	$478,901	Total liab. & equity	$478,901

The owners' equity for 2019 is the beginning of year owners' equity, plus the addition to retained earnings, plus the new equity, so:

Equity = $158,663 + 42,760 + 27,157
Equity = $228,580

3. Using the OCF equation:

OCF = EBIT + Depreciation – Taxes

The OCF for each year is:

OCF_{2018} = $108,308 + 63,334 – 19,850
OCF_{2018} = $151,792

OCF_{2019} = $124,032 + 71,584 – 22,733
OCF_{2019} = $172,883

4. To calculate the cash flow from assets, we need to find the capital spending and change in net working capital. The capital spending for the year was:

Capital spending	
Ending net fixed assets	$348,508
– Beginning net fixed assets	279,419
+ Depreciation	71,584
Net capital spending	$140,673

And the change in net working capital was:

Change in net working capital	
Ending NWC	$38,440
– Beginning NWC	20,284
Change in NWC	$18,156

So, the cash flow from assets was:

Cash flow from assets	
Operating cash flow	$172,883
– Net capital spending	140,673
– Change in NWC	18,156
Cash flow from assets	$14,054

5. The cash flow to creditors was:

Cash flow to creditors	
Interest paid	$15,780
– Net new borrowing	17,328
Cash flow to creditors	–$1,548

6. The cash flow to stockholders was:

Cash flow to stockholders	
Dividends paid	$42,760
– Net new equity raised	27,157
Cash flow to stockholders	$15,603

Answers to questions

1. The firm had positive earnings in an accounting sense (NI > 0) and had positive cash flow from operations. The firm invested $18,156 in new net working capital and $140,673 in new fixed assets. The firm gave $14,054 to its stakeholders. It raised $1,548 from bondholders and paid $15,603 to stockholders.

2. The expansion plans may be a little risky. The company does have a positive cash flow, but a large portion of the operating cash flow is already going to capital spending. The company has had to raise capital from creditors and stockholders for its current operations. So, the expansion plans may be too aggressive at this time. On the other hand, companies do need capital to grow. Before investing or loaning the company money, you would want to know where the current capital spending is going, and why the company is spending so much in this area already.

Chapter 2
FINANCIAL STATEMENTS, TAXES, AND CASH FLOW

Financial Statements, Taxes, and Cash Flows			
2	**Chapter Organization**	**Slide Number**	**Slide Title**
	Introduction	2.2	Key Concepts and Skills
		2.3	Chapter Outline
2.1	**The Balance Sheet**		
	Assets: The Left-Hand Side Liabilities and Owner's Equity: The Right-Hand Side	2.4	The Balance Sheet (1 of 2)
		2.5	The Balance Sheet: Figure 2.1
	Net Working Capital Liquidity Debt versus Equity	2.6	The Balance Sheet (2 of 2)
		2.7	U.S. Corporation Balance Sheet: Table 2.1
	Market Value versus Book Value	2.8	Market vs. Book Value
		2.9	Klingon Corporation: Example 2.2
2.2	**The Income Statement**		
		2.10	Income Statement
		2.11	U.S Corporation Income Statement: Table 2.2
	GAAP and the Income Statement Noncash Items	2.12	Financial Statements (1 of 2)
	Time and Costs Earnings Management	2.13	Financial Statements (2 of 2)
		2.14	Example: Work the Web
2.3	**Taxes**		
	Corporate Tax Rates	2.15	Taxes
		2.16	Corporate Tax Rates
	Average versus Marginal Tax Rates	2.17	Example: Marginal vs. Average Rates
		2.18	Tax on $100,000 Million
		2.19	Average & Marginal Tax Rates
2.4	**Cash Flow**		
		2.20	The Concept of Cash Flow
	Cash Flow from Assets Cash Flow to Creditors and Stockholders	2.21	Cash Flow from Assets
		2.22	Example: U.S. Corporation (1 of 2)
		2.23	Example: U.S. Corporation (2 of 2)
	Conclusion	2.24	Formula Summary: Table 2.4
		2.25	Quick Quiz (1 of 2)
		2.26	Quick Quiz (2 of 2)
		2.27	Comprehensive Problem—Dole Cola I/S
		2.28	Comprehensive Problem—Dole Cola OCF
		2.29	Comprehensive Problem—Dole Cola NCS & ΔNWC
		2.30	Comprehensive Problem—Dole Cola CFFA
		2.31	Comprehensive Problem—Dole Cola CFFA Option 2
		2.32	Comprehensive Problem—Dole Cola Cash Flow to Stockholders & Creditors
		2.33	Comprehensive Problem—Dole Cola CF to Creditors

CHAPTER WEBSITES
Websites may be referenced more than once in a chapter. This table just includes the section for the first reference.

Chapter Section	Web Address
2.1	finance.yahoo.com
	money.cnn.com
	www.thewaltdisneycompany.com
	www.sec.gov
	www.fasb.org
2.2	www.ifrs.org
2.3	www.irs.gov
What's On the Web?	www.alcoa.com
	www.coca-cola.com
	www.duke-energy.com
	www.coopertire.com

Lecture Notes:
Chapters 2 and 3 are primarily accounting review. This chapter covers the balance sheet and income statement, which should be very familiar to students. The approach to calculating cash flow from assets may be a new concept as they have probably been introduced to the standard accounting statement of cash flows.

ANNOTATED CHAPTER OUTLINE

Slide 2.2 Key Concepts and Skills

Slide 2.3 Chapter Outline

Slide 2.4 The Balance Sheet (1 of 2)

- Current assets are listed first on the right-hand side because they are the most liquid. Fixed assets can include both tangible and intangible assets and generally are not very liquid.
- Liabilities and equity (or ownership) components of the firm are listed on the right-hand side and indicate how the assets are paid for.
- The Balance Sheet Identity: Assets = Liabilities + Shareholders' equity

Slide 2.5 The Balance Sheet - Figure 2.1

All finance decisions are either investment decisions or financing decisions.

- Investment decisions involve the purchase and sale of any assets (not just financial assets) and show up on the left-hand side of the balance sheet.

- Financing decisions involve the choice of whether to borrow money to buy the assets or to issue new ownership shares and show up on the right-hand side of the balance sheet.
- Shareholders' equity consists of the common stock account, paid in surplus, retained earnings and treasury stock.
- The firm's net income belongs to the owners. It can either be paid out in dividends or reinvested in the firm. When it is reinvested in the firm, it becomes additional equity investment and shows up in the retained earnings account.

Slide 2.6 The Balance Sheet (2 of 2)

- Net Working Capital = Current assets – Current liabilities

- Liquidity has two components: how long it takes to convert to cash *and* the value that must be relinquished to convert to cash quickly. Any asset can be converted to cash quickly if you are willing to lower the price enough.

  Liquid assets provide lower returns so too much liquidity can be just as detrimental to shareholder wealth maximization as too little liquidity.

- Debt versus Equity
  Interest and principal payments on debt have to be paid before cash may be paid to stockholders.

  The company's gains and losses are magnified as the company increases the amount of debt in the capital structure, which is why the use of debt is called financial "leverage."

Slide 2.7 U.S. Corporation Balance Sheet (Table 2.1)

This is an example of a simplified balance sheet. If possible, bring in some annual reports and let the students see the differences between the simplified statements they see in textbooks and the real thing or use "Work the Web" (Slide 2.14) to show real financial statements.

Slide 2.8 Market vs. Book Value

Current assets and current liabilities generally have book values and market values that are very close. Assets are listed at historical cost less accumulated depreciation. "Total Assets" on the balance sheet is generally not a very good estimate of what the assets of the firm are actually worth.

Liabilities are listed at face value. When interest rates or the risk of the firm changes, the value of those liabilities change as well, especially longer-term liabilities.

Equity is the ownership interest in the firm. The market value of equity (stock price times number of shares) depends on the future growth prospects of the firm and on the market's estimation of the current value of ALL of the assets of the firm.

The best estimate of the market value of the firm's assets is market value of Liabilities + Market value of equity.

Accounting, or historical costs, are not very important to financial managers, while market values, which represent the cash price people are willing and able to pay, are very important.

Slide 2.9 Klingon Corporation (Example 2.2)

Shareholders benefit from increases in the market value of a firm's assets and they also bear the losses of a decrease in market value.

GAAP does provide for some assets to be marked-to-market, primarily those assets for which current market values are readily available due to trading in liquid markets. However, it does not generally apply to long-term assets, where market values and book values are likely to differ the most. Thus, it is unlikely that the aggregate balance sheet values provided by the firm will accurately reflect market values.

Slide 2.10 Income Statement

Earnings before interest and taxes (EBIT) is often called "operating income."

COGS would include both the fixed costs and the variable costs needed to generate the revenues.

The Income Statement Equation: Net Income = Revenue – Expenses

Analysts often look at EBITDA (earnings before interest, taxes, depreciation, and amortization) as a measure of the operating cash flow of the firm. It is not true in the strictest sense because taxes are an operating cash flow as well, but it does provide a reasonable estimate for analysis purposes.

Slide 2.11 U.S. Corporation Income Statement (Table 2.2)

Previously, it was noted that investment decisions are reflected on the left-hand side of the balance sheet and financing decisions are reflected on the right-hand side.

The income statement reflects investment decisions in the "top half," from sales to EBIT. Financing decisions are reflected in the "bottom half," from EBIT to net income and earnings per share.

Slide 2.12 Financial Statements (1 of 2)

GAAP Matching Principle

- GAAP require that revenue be recognized when it is earned, not when the cash is received, and costs are matched to revenues. This introduces noncash deductions such as depreciation and amortization. Consequently, net income is

NOT the same as cash flow.

Noncash Items

- The largest noncash deduction for most firms is depreciation. It reduces a firm's taxes and its net income. Noncash deductions are part of the reason that net income is not equivalent to cash flow.

Slide 2.13 Financial Statements (2 of 2) (Web link)

www: *Click on the link to go to the IFRS website for information on GAAP versus international accounting standards.*

Time and Costs

In the short run, some costs are fixed regardless of output, and other costs are variable, meaning they vary with the level of output. In the long run, all costs are variable.

GAAP allows sufficient management discretion that firms routinely "manage earnings" to present the best results to stockholders and analysts.

Slide 2.14 Example: Work the Web (Web link)

www: *Click on the link to go to the SEC "Search the EDGAR Database" website.*

An excellent opportunity to show the actual financial statements of a selected company using the SEC EDGAR website or Yahoo! Finance.

Slide 2.15 Taxes (Web link)

www: *Click on the link to go to the IRS website for the most up-to-date tax information.*

- For the purpose of computing a company's total tax liability, the average tax rate is the correct rate to apply to before-tax profits.
- In evaluating the cash flows expected from a new investment, the marginal tax rate is the appropriate rate to use, because the new investment will generate cash flows that will be taxed in addition to the company's existing profit.

Slide 2.16 Corporate Tax Rates

The federal corporate tax rate in the US became a flat 21 percent after the passage of the Tax Cuts and Jobs Act of 2017.

Slide 2.17 Example: Marginal vs. Average Rates

Suppose you are single and your personal taxable income is $100,000. What is your tax bill?

Slide 2.18 Tax on $100,000 (Excel link)

Tax liability:

.10($9,525)	= $ 952.50
.12($38,700 - 9,525)	= 3,501.00
.22($82,500 - 38,700)	= 9,636.00
.24($100,000 - 82,500)	= 4,200.00
	$18,289.50

Slide 2.19 Average & Marginal Tax Rates

Table 2.4 is useful for comparing actual marginal rates with average rates. Table 2.5 compares average tax rates across various industries.

Slide 2.20 The Concept of Cash Flow

This is NOT the standard accounting Statement of Cash Flows.

Slide 2.21 Cash Flow from Assets

- The first equation shows the cash flow that the firm receives from its assets.
  CFFA = Operating cash flow – Net capital spending – Δ in net working capital

  Operating cash flow = EBIT + depreciation – taxes
  Net capital spending = ending fixed assets – beginning fixed assets + depreciation
  Changes in NWC = ending NWC – beginning NWC

- The second equation shows how the cash flow from the firm is divided among the investors who financed the assets.
  Cash flow from assets = Cash flow to creditors + Cash flow to stockholders

  Cash flow to creditors = interest paid – net new borrowing
  = interest paid – (ending long-term debt – beginning long-term debt)
  Cash flow to stockholders = dividends paid – net new equity raised
  = dividends paid – (ending common stock, APIC, & Treasury stock – beginning common stock, APIC, & Treasury stock)
  Where APIC = additional paid in capital or paid in surplus

Slide 2.22 Example: U.S. Corporation (1 of 2)

- CFFA = OCF – NCS – ΔNWC
  OCF = EBIT + depreciation – taxes
  = $694 + 65 – 212 = $547
  NCS = ending net FA – beginning net FA + depreciation
  = $1709 – 1644 + 65 = $130
  ΔNWC = ending NWC – beginning NWC
  = ($1403 – 389) – ($1112 – 428) = $330

- CFFA = 547 – 130 – 330 = $87

Slide 2.23 Example: U.S. Corporation (2 of 2)

- CFFA = CF/CR + CF/SH
  CF/CR = interest paid – net new borrowing
  = $70 – ($454 – 408) = $24
  CF/SH = dividends paid – net new equity
  = $103 – ($640 – 600) = $63
- CFFA = $24 + $63 = $87

Slide 2.24 Table 2.4

Slide 2.25 Quick Quiz—Part I

Slide 2.26 Quick Quiz—Part II

Comprehensive Problem—Dole Cola

This problem covers calculating CFFA using both formulas given on slide 2.21.

Slide 2.27 Dole Cola Income Statement

Slide 2.28 Dole Cola Operating Cash Flow

OCF = EBIT + Depreciation – Taxes

Slide 2.29 Dole Cola Net Capital Spending & Change in Net Working Capital

NCS = Ending NFA – Beginning NFA + Depreciation

ΔNWC = [2010(CA – CL)] – [2009(CA – CL)]

Slide 2.30 Dole Cola Cash Flow from Assets (Option 1) (Excel link)

CFFA = OCF – NCS – ΔNWC

Slide 2.31 Dole Cola CFFA (Option 2)

From Slide 2-26: CFFA = ($181)

Slide 2.32 Dole Cola Cash Flow to Stockholders & Creditors

CF to Stockholders (CF/SH) = Dividends – New equity

CF to creditors (CF/CR) can be derived from the CF to stockholders and CFFA

CF/CR = CFFA – CF/SH

Slide 2.33 Dole Cola Cash Flow to Creditors (Excel link)

Net new borrowing = CF/CR – Interest paid