

# **Solutions Manual**

*Essentials of Corporate Finance*

**Ross, Westerfield, and Jordan**  
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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, hard to raise 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 Fries 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 simply 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.

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# 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.

## 5 – SOLUTIONS MANUAL

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	\$2,030	Current liabilities	\$1,640
Net fixed assets	<u>9,780</u>	Long-term debt	4,490
		Owners' equity	<u>5,680</u>
Total assets	<u>\$11,810</u>	Total liabilities and owners' equity	<u>\$11,810</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:

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

$$\text{Owners' equity} = \$11,810 - 1,640 - 4,490$$

$$\text{Owners' equity} = \$5,680$$

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

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

$$\text{NWC} = \$2,030 - 1,640$$

$$\text{NWC} = \$390$$

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>68,250</u>
Net income	<u><u>\$126,750</u></u>

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 = \$126,750 – 43,000

Addition to retained earnings = \$83,750

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

EPS = Net income / Shares outstanding

EPS = \$126,750 / 35,000

EPS = \$3.62 per share

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

DPS = Dividends / Shares outstanding

DPS = \$43,000 / 35,000

DPS = \$1.23 per share

5. Using Table 2.3, we can see the marginal tax schedule. The first \$50,000 of income is taxed at 15 percent, the next \$25,000 is taxed at 25 percent, the next \$25,000 is taxed at 34 percent, and the next \$143,000 is taxed at 39 percent. So, the total taxes for the company will be:

Taxes = .15(\$50,000) + .25(\$25,000) + .34(\$25,000) + .39(\$243,000 – 100,000)

Taxes = \$78,020

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 = \$78,020 / \$243,000

Average tax rate = .3211, or 32.11%

The marginal tax rate is the tax rate on the next dollar of income. The company has net income of \$243,000 and the 39 percent tax bracket is applicable to a net income up to \$335,000, so the marginal tax rate is 39 percent.



## 7 – SOLUTIONS MANUAL

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 (35%)	<u>7,483</u>
Net income	<u>\$13,897</u>

Now we can calculate the OCF, which is:

$$\begin{aligned} \text{OCF} &= \text{EBIT} + \text{Depreciation} - \text{Taxes} \\ \text{OCF} &= \$23,230 + 2,550 - 7,483 \\ \text{OCF} &= \$18,297 \end{aligned}$$

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

$$\begin{aligned} \text{Net capital spending} &= \text{NFA}_{\text{end}} - \text{NFA}_{\text{beg}} + \text{Depreciation} \\ \text{Net capital spending} &= \$2,134,000 - 1,975,000 + 325,000 \\ \text{Net capital spending} &= \$484,000 \end{aligned}$$

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

$$\begin{aligned} \text{Change in NWC} &= \text{NWC}_{\text{end}} - \text{NWC}_{\text{beg}} \\ \text{Change in NWC} &= (\text{CA}_{\text{end}} - \text{CL}_{\text{end}}) - (\text{CA}_{\text{beg}} - \text{CL}_{\text{beg}}) \\ \text{Change in NWC} &= (\$1,685 - 1,305) - (1,530 - 1,270) \\ \text{Change in NWC} &= \$120 \end{aligned}$$

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

$$\begin{aligned} \text{Cash flow to creditors} &= \text{Interest paid} - \text{Net new borrowing} \\ \text{Cash flow to creditors} &= \text{Interest paid} - (\text{LTD}_{\text{end}} - \text{LTD}_{\text{beg}}) \\ \text{Cash flow to creditors} &= \$102,800 - (\$1,551,000 - 1,410,000) \\ \text{Cash flow to creditors} &= -\$38,200 \end{aligned}$$

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.)

$$\begin{aligned} \text{Cash flow to stockholders} &= \text{Dividends paid} - \text{Net new equity} \\ \text{Cash flow to stockholders} &= \text{Dividends paid} - [(\text{Common}_{\text{end}} + \text{APIS}_{\text{end}}) - (\text{Common}_{\text{beg}} + \text{APIS}_{\text{beg}})] \\ \text{Cash flow to stockholders} &= \$148,500 - [(\$148,000 + 2,618,000) - (\$130,000 + 2,332,000)] \\ \text{Cash flow to stockholders} &= -\$155,500 \end{aligned}$$

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: