

■ Solutions to Problems

P1-1. LG 1: Liability comparisons

Basic

- a. Ms. Harper has unlimited liability.
- b. Ms. Harper has unlimited liability.
- c. Ms. Harper has limited liability, which guarantees that she cannot lose more than she invested.

P1-2. LG 2, 4: Marginal cost-benefit analysis and the goal of the firm

Intermediate

- | | | |
|----|-----------------------------------|------------------|
| a. | Benefits from new robotics | \$560,000 |
| | Benefits from existing robotics | <u>400,000</u> |
| | Marginal benefits | <u>\$160,000</u> |
| b. | Initial cash investment | \$220,000 |
| | Receipt from sale of old robotics | <u>70,000</u> |
| | Marginal cost | <u>\$150,000</u> |
| c. | Marginal benefits | \$160,000 |
| | Marginal cost | <u>150,000</u> |
| | Net benefits | <u>\$ 10,000</u> |
- d. Ken should recommend that the company replace the old robotics with the new robotics. The net benefit to shareholders is positive which should make the shareholders better off.
 - e. Ken should consider more than just net benefits. He should incorporate the important points of timing, cash flow, and risk, three important factors to determining the true impact on shareholders' wealth.

P1-3. LG 2: Annual income versus cash flow for a period

Basic

- | | | |
|----|--------------------|------------------|
| a. | Sales | \$760,000 |
| | Cost of goods sold | <u>300,000</u> |
| | Net profit | <u>\$460,000</u> |
| b. | Cash receipts | \$690,000 |
| | Cost of goods sold | <u>300,000</u> |
| | Net cash flow | <u>\$390,000</u> |
- c. The cash flow statement is more useful to the financial manager. The accounting net income includes amounts that will not be collected and, as a result, do not contribute to the wealth of the owners.

P1-4. LG 1: Personal finance: Cash flow statement

- a. Total cash inflow: $\$450 + \$4,500 = \$4,950$
Total cash outflow: $\$1,000 + \$500 + \$800 + \$355 + \$280 + \$1,200 + \$222 = \$4,357$
- b. Net cash flow: $\$4,950 - \$4,357 = \$593$
- c. If Jane is facing a shortage, she could cut back on some of her discretionary items, including clothing, dining out, and gas (i.e., travel less).
- d. If Jane has a surplus in August, she should compare these cash flows to those of other months and verify that August's cash flows are typical. She may for instance, observe the existence of large automobile insurance bills or tendency to spend more during the Christmas holiday season. If she has such needs, Jane will want to save the \$593 in a money market security, where she is unlikely to face a decline in investment. If her August net cash flow is not needed to pay anticipated bills, she should invest in a diversified portfolio.

P1-5. LG 4: Identifying agency problems, costs, and resolutions

Intermediate

- a. In this case the employee is being compensated for unproductive time. The company must pay someone to take her place during her absence. Installation of a time clock that must be punched by the receptionist every time she leaves work and returns would result in either: (1) her returning on time or (2) reducing the cost to the firm by reducing her pay for the lost work.
- b. The costs to the firm are in the form of opportunity costs. Money budgeted to cover the inflated costs of this project proposal is not available to fund other projects that may help to increase shareholder wealth. Make the management reward system based on how close the manager's estimates come to the actual cost rather than having them come in below cost.
- c. The manager may negotiate a deal with the merging competitor that is extremely beneficial to the executive and then sell the firm for less than its fair market value. A good way to reduce the loss of shareholder wealth would be to open the firm up for purchase bids from other firms once the manager makes it known that the firm is willing to merge. If the price offered by the competitor is too low, other firms will up the price closer to its fair market value.
- d. Generally part time or temporary workers are not as productive as full-time employees. These workers have not been on the job as long to increase their work efficiency. Also, the better employees generally need to be highly compensated for their skills. This manager is getting rid of the highest cost employees to increase profits. One approach to reducing the problem would be to give the manager performance shares if they meet certain stated goals. Implementing a stock incentive plan tying management compensation to share price would also encourage the manager to retain quality employees.

P1-6. LG 6: Corporate taxes

Basic

- a. Firm's tax liability on \$92,500 (from Table 1.4):
Total taxes due = $\$13,750 + [0.34 \times (\$92,500 - \$75,000)]$
= $\$13,750 + (0.34 \times \$17,500)$
= $\$13,750 + \$5,950$
= $\$19,700$
- b. After-tax earnings: $\$92,500 - \$19,700 = \$72,800$
- c. Average tax rate: $\$19,700 \div \$92,500 = 21.3\%$

d. Marginal tax rate: 34%

P1-7. LG 6: Average corporate tax rates

Basic

a. Tax calculations using Table 1.4:

\$10,000:	Tax liability:	$\$10,000 \times 0.15 = \$1,500$
	After-tax earnings:	$\$10,000 - \$1,500 = \$8,500$
	Average tax rate:	$\$1,500 \div \$10,000 = 15\%$
\$80,000:	Tax liability:	$\$13,750 + [0.34 \times (80,000 - \$75,000)]$
		$\$13,750 + (0.34 \times \$5,000)$
		$\$13,750 + \$1,700$
		$\$15,450 = \text{Total tax}$
	After-tax earnings:	$\$80,000 - \$15,450 = \$64,550$
Average tax rate:	$\$15,450 \div \$80,000 = 19.3\%$	
\$300,000:	Tax liability:	$\$22,250 + [0.39 \times (\$300,000 - \$100,000)]$
		$\$22,250 + (0.39 \times \$200,000)$
		$\$22,250 + \$78,000$
		$\$100,250 = \text{Total tax}$
	After-tax earnings:	$\$300,000 - \$100,250 = \$199,750$
Average tax rate:	$\$100,250 \div \$300,000 = 33.4\%$	
\$500,000:	Tax liability:	$\$113,900 + [0.34 \times (\$500,000 - \$335,000)]$
		$\$113,900 + (0.34 \times \$165,000)$
		$\$113,900 + \$56,100$
		$\$170,000 = \text{Total tax}$
	After-tax earnings:	$\$500,000 - \$170,000 = \$330,000$
Average tax rate:	$\$170,000 \div \$500,000 = 34\%$	
\$1,500,000:	Tax liability:	$\$113,900 + [0.34 \times (\$1,500,000 - \$335,000)]$
		$\$113,900 + (0.34 \times \$1,165,000)$
		$\$113,900 + \$396,100$
		$\$510,000 = \text{Total tax}$
	After-tax earnings:	$\$1,500,000 - \$510,000 = \$990,000$
Average tax rate:	$\$510,000 \div \$1,500,000 = 34\%$	

\$10,000,000: Tax liability: $\$113,900 + [0.34 \times (\$10,000,000 - \$335,000)]$
 $\$113,900 + (0.34 \times \$9,665,000)$
 $\$113,900 + \$3,286,100$
 $\$3,400,000 = \text{Total tax}$

After-tax earnings: $\$10,000,000 - \$3,400,000 = \$6,600,000$

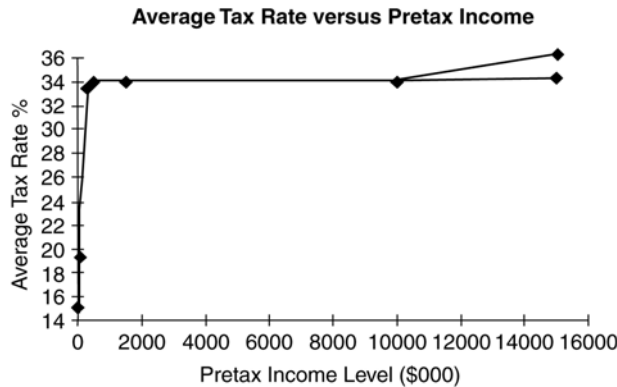
Average tax rate: $\$3,400,000 \div \$10,000,000 = 34\%$

\$20,000,000: Tax liability: $\$6,416,667 + [0.35 \times (\$20,000,000 - \$18,333,333)]$
 $\$6,416,667 + (0.35 \times \$1,666,667)$
 $\$6,416,667 + 583,333.45$
 $\$7,000,000.45 = \text{Total tax}$

After-tax earnings: $\$20,000,000 - \$7,000,000.45 = \$13,000,000$

Average tax rate: $\$7,000,000 \div \$20,000,000 = 35\%$

b.



As income increases, the rate reaches 35%.

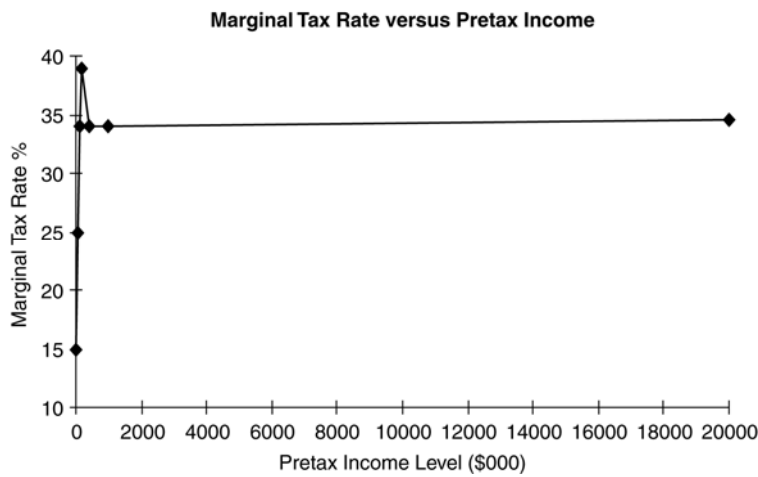
P1-8. LG 6: Marginal corporate tax rates

Basic

a.

Pretax Income	Tax Calculation						Marginal Rate
	Base Tax	+	%	×	Amount Over Base	= Tax	
\$ 15,000	\$ 0	+	(0.15	×	15,000)	= \$ 2,250	15.0%
60,000	7,500	+	(0.25	×	10,000)	= 10,000	25.0%
90,000	13,750	+	(0.34	×	15,000)	= 18,850	34.0%
200,000	22,250	+	(0.39	×	100,000)	= 61,250	39.0%
400,000	113,900	+	(0.34	×	65,000)	= 136,000	34.0%
1,000,000	113,900	+	(0.34	×	665,000)	= 340,000	34.0%
20,000,000	6,416,667	+	(0.35	×	1,666,666)	= 700,000	35.0%

b.



As income increases to \$335,000, the marginal tax rate approaches and peaks at 39%. For income in excess of \$335,000, the marginal tax rate declines to 34%, and after \$10 million the marginal rate increases slightly to 35%.

P1-9. LG 6: Interest versus dividend income

Intermediate

- a. Tax on operating earnings: $\$490,000 \times 0.40$ tax rate = \$196,000
- b. and c

	(b) Interest Income	(c) Dividend Income	
Before-tax amount	\$20,000	\$20,000	
Less: Applicable exclusion	0	14,000	(0.70 × \$20,000)
Taxable amount	20,000	6,000	
Tax (40%)	8,000	2,400	
After-tax amount	12,000	17,600	

- d. The after-tax amount of dividends received, \$17,600, exceeds the after-tax amount of interest, \$12,000, due to the 70% corporate dividend exclusion. This increases the attractiveness of stock investments by one corporation in another relative to bond investments.
- e. Total tax liability:

Taxes on operating earnings (from (a))	\$196,000
+ Taxes on interest income (from (b))	8,000
+ Taxes on dividend income (from (c))	<u>2,400</u>
Total tax liability	<u>\$206,400</u>

P1-10. LG 6: Interest versus dividend expense

Intermediate

a. EBIT	\$40,000
Less: Interest expense	<u>10,000</u>
Earnings before taxes	\$30,000
Less: Taxes (40%)	<u>12,000</u>
Earnings after taxes *	<u>\$18,000</u>

*This is also earnings available to common stockholders.

b. EBIT	\$40,000
Less: Taxes (40%)	<u>16,000</u>
Earnings after taxes	\$24,000
Less: Preferred dividends	<u>10,000</u>
Earnings available for common stockholders	<u>\$14,000</u>

P1-11. LG 6: Capital gains taxes

Basic

- a. Capital gain:
 Asset X = \$2,250 – \$2,000 = \$250
 Asset Y = \$35,000 – \$30,000 = \$5,000
- b. Tax on sale of asset:
 Asset X = \$250 × 0.40 = \$100
 Asset Y = \$5,000 × 0.40 = \$2,000

P1-12. LG 6: Capital gains taxes

Basic

(a) and (b)

Asset	Sale Price (1)	Purchase Price (2)	Capital Gain (1)–(2) (3)	Tax (3) × 0.40 (4)
A	\$ 3,400	\$ 3,000	\$ 400	\$ 60
B	12,000	12,000	0	0
C	80,000	62,000	18,000	7,200
D	45,000	41,000	4,000	1,600
E	18,000	16,500	1,500	600

P1-13. LG 4: Ethics problem

Intermediate

Maximizing shareholder wealth, or the stock price, involves carefully evaluating each decisions impact on cash flow amount, timing, and risk. However, that statement includes nothing that directly incorporates the ethical aspect of decisions. The phrase “subject to ethical constraints” implies that there are ethical facets of business decisions that may or may not be a significant part of a decision’s cash flow projections. Think of all decisions being sifted through an “ethical filter”—some decisions are unethical and do not make it through the filter, while others are ethical and pass through the filter. Examples of ethical considerations that might enter into decisions include not exaggerating product quality or durability, correcting environmental problems even

though regulators or the general public would never know about them, and not exaggerating future cash flow projections in order to get a lower interest rate on a bank loan or bond issue. Each of these examples may decrease the size or delay the timing of cash inflows, or increase the riskiness of future cash flows—thereby reducing the stock price relative to what it could have been had one acted unethically. No doubt you have thought of other examples as well.

■ Case

Assessing the Goal of Sports Products, Inc.

1. Maximization of shareholder wealth, which means maximization of share price, should be the primary goal of the firm. Unlike profit maximization, this goal considers timing, cash flows, and risk. It also reflects the worth of the owners' investment in the firm at any time. It is the value they can realize should they decide to sell their shares.
2. Yes, there appears to be an agency problem. Although compensation for management is tied to profits, it is not directly linked to share price. In addition, management's actions with regard to pollution controls suggest a profit maximization focus, which would maximize their earnings, rather than an attempt to maximize share price.
3. The firm's approach to pollution control seems to be questionable ethically. While it is unclear whether their acts were intentional or accidental, it is clear that they are violating the law—an illegal act potentially leading to litigation costs—and as a result are damaging the environment, an immoral and unfair act that has potential negative consequences for society in general. Clearly, Sports Products has not only broken the law but also established poor standards of conduct and moral judgment.
4. From the information given there appears to be a weak corporate governance system. The fact that management is able to measure and reward their performance on profits indicates that no one is watching out for the shareholders. Loren and Dale's concerns indicate that employees apparently have an interest in the long-run success of the firm. Allowing the continuation of pollution violations is also apparently escaping the interest and control ability of others who should be monitoring the firm.
5. Some specific recommendations for the firm include:
 - Tie management, and possibly employee, compensation to share price or a performance-based measure and make sure that all involved own stock and have a stake in the firm. Being compensated partially on the basis of share price or another performance measure, and owning stock in the firm will more closely link the wealth of managers and employees to the firm's performance.
 - Comply with all federal and state laws as well as accepted standards of conduct or moral judgment.
 - Establish a corporate ethics policy, to be read and signed by all employees.
 - Set up a corporate governance system that has as its basis the oversight and welfare of all the stakeholders in the firm.

(Other answers are, of course, possible.)

■ Spreadsheet Exercise

The answer to Chapter 1's Monsanto spreadsheet problem is located in the Instructor's Resource Center at www.prenhall.com/irc.

■ A Note on Web Exercises

A series of chapter-relevant assignments requiring Internet access can be found at the book's Companion Website at <http://www.prenhall.com/gitman>. In the course of completing the assignments students access information about a firm, its industry, and the macro economy, and conduct analyses consistent with those found in each respective chapter.