

Part 1

Introduction to Managerial Finance

Chapters in This Part

Chapter 1 The Role of Managerial Finance

Chapter 2 The Financial Market Environment

Chapter 1

The Role of Managerial Finance

■ Instructor's Resources

Chapter Overview

This chapter introduces the field of finance through building-block terms and concepts. The discussion starts by defining “firm” and stressing its principal goal—maximizing shareholder wealth. The importance of focusing on shareholders rather than stakeholders broadly and stock price rather than current profits is explained. The managerial-finance function is then described and differentiated from economics and accounting, with special attention to the role ethics play in a financial manager’s efforts to maximize the firm’s stock price. Next, the three basic legal forms of business organization (sole proprietorship, partnership, and corporation) are discussed and the strengths and weaknesses of each form noted. The chapter concludes with an exploration of the agency problem—the conflict arising when the managers and owners of the firm are not the same people—and the private- and public-sector tools available to focus managerial attention on shareholder wealth.

This chapter and the ones to follow stress the important role finance vocabulary, concepts, and tools will play in the professional and personal lives of students—even those choosing other majors such as accounting, economics information systems, management, marketing, or operations. Whenever possible, personal-finance applications are provided to motivate and illustrate topics. This pedagogical approach should inspire students to master chapter content quickly and easily.

NOTE: After this text went to press, Congress passed the Tax Cuts and Job Act of 2017, which dramatically changed both corporate and personal tax rates. The first printing of this text did not reflect these tax changes, but subsequent print runs do. For tax-related problems below, we provide solutions under both the old and the new tax law. Of particular relevance to this chapter, the corporate tax rate is now a flat 21%. Individuals still face a progressive rate schedule, so there is still value in explaining the progressive nature of the old corporate structure as well as the difference between marginal and average tax rates (which are essentially the same under a flat-rate structure). The change in the corporate tax code—in particular the introduction of a lower, flatter rate—can serve as a useful discussion point throughout this text. For example, instructors may wish to discuss the impact of a lower tax rate on the NPV of investments or a firm’s optimal capital structure.

■ Answers to Review Questions

- 1-1. The goal of a firm, and therefore of all financial managers, is maximizing shareholder wealth. The proper metric for this goal is the price of the firm’s stock. Other things equal, an increasing price per share of common stock relative to the stock market as a whole indicates achievement of this goal.

- 1-2 Actions that maximize the firm's current profit may not produce the highest stock price because (1) some firm activities that result in slightly lower profit today generate much larger profits in the future periods (i.e., focusing on current profit overlooks the time value of money); (2) activities that generate higher accounting profits today may not result in higher cash flows to stockholders; and (3) activities that lead to high profits today may involve higher risk, which could result in significant future losses.
- 1-3 Risk is the chance actual outcomes may differ from expected outcomes. Financial managers must consider risk and return because the two factors tend to have an opposite effect on share price. That is, other things equal, an increase in the risk of cash flows to shareholders will depress firm stock price while higher average cash flows to shareholders will increase stock price.
- 1-4 Maximizing shareholder wealth does not mean overlooking or minimizing the welfare of other firm stakeholders. Firms with satisfied employees, customers, and suppliers tend to produce higher (or less risky) cash flows for their shareholders compared with companies that neglect non-owner stakeholders. That said, customers prefer lower prices for firm output, firm employees prefer higher wages, and firm suppliers prefer higher prices for the input goods and services they provide. So actions that produce the highest price of the firm's stock cannot simultaneously maximize customer, employee, and supplier satisfaction.
- 1-5 Broadly speaking, the decisions made by financial managers fall under three headings: (i) investment, (ii) capital budgeting, and (iii) working capital. Investment decisions involve the firm's long-term projects while financing decisions concern the funding of those projects. Working-capital decisions, in contrast are related to the firm's management of short-term financial resources.
- 1-6 Financial managers must recognize the tradeoff between risk and return because shareholders prefer higher cash flows but dislike large swings in cash flows. And, as a general rule, actions that boost the firm's average cash flows also result in greater cash-flow greater volatility. Viewed another way, firm actions to reduce the chance cash flows will be low or negative also tend to reduce average cash flows over time. Understanding this trade-off is important because shareholders are risk averse. That is, they will only accept larger swings in a firm's cash flows only if compensated over time with higher average cash flows.
- 1-7 Finance is often considered applied economics. One reason is firms operate within the larger economy. More importantly, the bedrock concept in economics—marginal benefit-marginal cost analysis—is also central to managerial finance. Marginal benefit-marginal cost analysis is the notion a firm (or any other economic actor) should take only those actions for which the extra benefits exceed the extra costs. Nearly, all financial decisions ultimately turn on an assessment of their marginal benefits and marginal costs.
- 1-8 Accountants and financial managers perform separate but equally important functions for the firm. Accountants primarily collect and present financial data according to generally accepted financial principles while financial managers make investment, capital-budgeting, and working-capital decisions with financial data. In part because of their different functions, accountants and financial managers log firm revenues and expenses using different conventions. Accountants operate on an accrual basis, recognizing revenues as firm output is sold (whether or not payment is actually received) and firm expenses as incurred. Financial managers, in contrast, focus on actual inflows and outflows of cash, recognizing revenues when physically received and expenses when actually paid.

- 1-9 Like any economic actor, managers respond to incentives. Managers have a fiduciary duty to maximize shareholder wealth, but as humans, they also have personal goals—such as maximizing their own income, wealth, reputation, and quality of life. If the personal benefits of delivering for shareholders (or the costs of slighting them) are small, a financial manager might opt to further his own interest at the expense of shareholders. For example, CEOs of large firms—those with more sales, assets, employees, etc.—tend to receive more compensation than CEOs of smaller firms. If a CEO has to choose between two operating strategies—one that produces modest growth for his firm but a large jump in current stock price and another that generates rapid growth but a more modest rise in share price—and the firm’s board is not closely monitoring the CEO, she might pursue the high-growth strategy to boost her future compensation. A partial solution to such a problem is a compensation closely linking CEO compensation to firm stock price.
- 1-10 Sole proprietorships are the most common form of business organization while corporations tend to be the largest. Large firms tend to organize as corporations to insulate owners from losses (limit liability) and facilitate acquisition of financial capital to fund growth.
- 1-11 Stockholders are the owners of a corporation. Their ownership (equity) takes the form of common stock or, less frequently, preferred stock. Stockholders elect the board of directors, which has ultimate responsibility for guiding corporate affairs and setting general policy. The board usually comprises key corporate personnel and outside directors. The corporation’s president or chief executive officer (CEO) reports to the board. He or she oversees day-to-day operations subject to the general policies established by the board. The corporation’s owners (shareholders) do not have a direct relationship with management; they provide input by electing board members and voting on major charter issues. Shareholders receive compensation in two forms: (i) dividends paid on their stock (from corporate earnings) and (ii) capital gains from increases in the price of their shares (which reflect market expectations about future dividends).
- 1-12 Generally speaking, income from sole proprietorships and partnerships is taxed only once at the individual level; the owner or owners pay personal income tax on their share of firm’s profits. In contrast, corporate income is taxed first at the firm level (via the corporate income tax paid on firm profits) and then again at the personal level (via personal income tax paid on dividends or capital gains enjoyed by shareholders).
- 1-13 Agency problems arise when managers place personal goals ahead of their duty to shareholders to maximize stock price. The attendant costs are called agency costs. Agency costs can be implicit or explicit; either way they reduce shareholder wealth. An example of an “implicit” agency cost is the dividends or capital gains shareholders miss out on because the firm’s management team pursued a personal interest (like maximizing sales to boost future compensation) rather than maximizing shareholder wealth. Of course, if shareholders sense stock price is not what it should be, they will start monitoring management more closely. The expenses associated with greater monitoring are an example of an “explicit” agency cost. Agency problems in a firm can be reduced with a properly constructed and followed corporate-governance structure. Such a structure will feature checks and balances that reduce management’s interest in and ability to deviate from shareholder-wealth maximization. Like all corporate decisions, reducing agency costs is subject to marginal benefit-marginal cost analysis. In other words, the firm should invest in policies to align the incentives of management and shareholders as long as the marginal benefits exceed the marginal costs.

- 1-14 Firms most commonly try to mitigate agency problems by linking pay to metrics connected with shareholder wealth. Incentive plans tie compensation to share price. For example, the CEO might receive options offering the right to purchase stock at a set price (say current price) any time in the next few years. If the CEO takes actions that subsequently boost share price, she can profit personally by exercising the option—purchasing stock at the set price—and reselling at the higher market price. The higher the firm's stock price, the more money the CEO can make, so options create a powerful incentive to focus laser-like on shareholder wealth. There is a downside, however. Sometimes general market trends swamp all the good done by management, so even though the CEO obsessed over shareholder wealth, her options proved worthless because a bear market hammered the firm's stock price. This problem has made performance plans more popular. These plans link compensation with performance measures related to stock price that management can more closely control—such as earnings per share (EPS) and EPS growth. When targets for the performance metrics are attained, managers receive rewards like performance shares and/or cash bonuses.
- 1-15 If the board of directors fails to keep management focused on shareholder wealth, market forces can apply the necessary pressure. Two such forces are activism by institutional investors and the threat of hostile takeovers. Institutions typically hold large quantities of shares in many corporations. Because of their large stakes, these investors actively monitor management and vote their shares for the benefit of all shareholders. Large institutional investors reduce agency problems by using their voting clout to elect new directors that will make the changes in policies and personnel necessary to get underperforming stock to its highest possible price. The threat of hostile takeover can also keep management focused on shareholders. Say a firm has a stock price of \$15, but that price could be \$20 with bold action management is reluctant to take. The lure of a \$5 capital gain per share could tempt an outside individual, group of investors or firm not supported by existing management to purchase controlling interest and force the necessary changes. Incumbent management knows “necessary changes” means unemployment, so the threat of takeover could be enough to align their interests with those of the owners.

■ Suggested Answer to *Focus on Practice Box*: Must Search Engines Screen Out Fake News?

Is the goal of maximizing shareholder wealth necessarily ethical or unethical?

The “end” of maximizing shareholder wealth is neither ethical nor unethical; it is neutral. But the means employed to pursue the end can be ethical or unethical. For example, taking actions to raise share price in clear violation of U.S. law is unethical—that is to say, wrong even if the violations are not uncovered.

What responsibility, if any, does Google have to help users assess the veracity of online content?

Management's overriding concern should be shareholder wealth. Knowingly posting content a reasonable person could see is fake harms shareholders by damaging the Google brand, so some due diligence is warranted. How much Google should invest in validating online content depends on the marginal benefits and costs. Specifically, Google should verify as long as the marginal benefit to shareholders exceeds the marginal cost—that is, only as long as the net effect on stock price is positive.

■ Answers to Warm-Up Exercises

E1-1. *Advantages and disadvantages of partnership versus incorporation (LG 5)*

Answer: Each form of business organization has advantages and disadvantages. One advantage of a simple partnership is that each partner's income is taxed only once as personal income (i.e., subject to the personal income tax). Corporate income, in contrast, is taxed twice—corporate profits will be subject to the corporate income tax, and the dividends and capital gains from each partner's stock will be taxed as personal income.

Taxation is a key factor in choosing the form of business organization, but two other factors are also important. In a partnership, each partner has unlimited liability and may have to cover debts of other partners, while corporate owners have limited liability that guarantees they cannot lose more than they have invested in the corporation. The third major consideration is ease of transfer of the business. Partnerships are harder to transfer and technically dissolved when a partner dies while a corporation has an infinite life (absent bankruptcy, merger, or acquisition) with ownership readily transferable through sale of existing shares.

If a third party were asked to decide which legal form of business A&J Tax Preparation should take, it would be useful to have the following information:

- Relevant specifics of current personal and corporate income tax codes (such as marginal rates, deductions, etc.)
- Expected future changes in tax law.
- Expected longevity of firm
- Age of current owners
- Current succession plan
- Risk tolerance of owners
- Capital needs of firm
- Growth prospects of firm
- Reasons for each partner's view on preferred form of ownership

E1-2 *Timing of cash flows (LG 4)*

Answer: Based on the information provided, the choice is not obvious. Even though the second project is expected to provide a larger overall increase in earnings, the goal of the firm is maximizing shareholder value (not earnings *per se*), so the timing and risk of cash flows must be considered to determine which project is superior. For example, even if the second project's cash flows are higher, they tend to arrive later, so it is not clear whether the second project is preferable to the first.

E1-3. *Cash flow vs. profits (LG 4)*

Answer: It is not unusual for profitable firms to suffer a cash crunch. This typically happens when expenses must be paid before revenue can be collected. In such cases, the firm must arrange financing to plug the gap between cash inflows and outflows. If cash crunches are regular, management should consider going ahead with the party, particularly if it is important for employee morale (i.e., cancelling might significantly reduce productivity)—provided adequate short-term funding is available. If the crunch is new, larger problems could lie ahead, and funding a party before the cash-flow outlook became clear might expose the firm to financial risk.

E1-4. *Sunk costs (LG 5)*

Answer: Marginal benefit-marginal cost analysis ignores sunk costs, so the \$2.5 million dollars spent over the past 15 years is irrelevant to the current decision. At this point, what matters is whether expected revenues from additional investment exceed expected costs, after adjusting for the risk and timing of cash flows. If so, and funding is available, the investment is sound (irrespective of the specific

capital expenditure required). The key to the decision may well lie in the satellite-division manager's candid assessment that the project has little chance of viability. That assessment suggests additional expenditure is likely to throw good money after bad.

E1-5. Agency costs (LG 6)

Answer: Agency costs arise when one party (principal) designates another party (agent) to act on her behalf and the second party (agent) has latitude to pursue her own interest at the expense of the principal. In a corporation, shareholders are principals and managers agents. If shareholders fail to monitor adequately, managers could focus on personal goals rather than shareholder value. The resulting negative impact on stock price is an example of an agency cost. Another example is the cost of stock options, which focus manager attention on share price but also raise managerial compensation.

In the Donut Shop, Inc. example, the principal is store management, and the agents are employees. As normal humans, employees might prefer talking with other each or taking long breaks to focusing laser-like on customers. Banning tips led to poorer service, which could ultimately drive customers elsewhere and cost store managers their jobs. Tipping, like options, aligns the interests of principals and agents. The prospect of a tip kept employees (agents) focused on customer satisfaction, just as store management (principals) wished.

One potential solution for Donut Shop, Inc., is a profit-sharing plan that includes employees whose behavior reduced customer satisfaction. For the new benefit to be effective, Donut Shop must sell the plan as a replacement for tipping and structure it to provide generous bonuses when profits rise (because profit sharing lacks the immediacy of tips for good service). Perhaps a simpler solution is recognizing the ban on tipping led to customer-service problems in the first place and reversing the policy.

E1-6. Corporate tax liability (LG 5)

Answer: Note to instructors: After the first print run of this text, Congress made major changes to corporate taxes. A revised printing incorporated the newest tax changes, but some students may be using a version of the text with a graduated corporate tax code rather than the current 21% flat tax. The answer to this question under current law is that taxes are 21% of income, which is \$500,000 plus the \$25,000 capital gain. $21\% \times \$525,000 = \$110,250$. For students using the first print run with the old tax rates, the answer is as follows. Ross purchased the asset for \$125,000 and sold it for \$150,000, thereby netting a \$25,000 capital gain. This gain is taxed as ordinary corporate income, so total taxable income is \$525,000. From Table 1.2, the tax liability equals $(0.15) (\$50,000) + (0.25) (\$75,000 - \$50,000) + (0.34) (\$100,000 - \$75,000) + (0.39) (\$335,000 - \$100,000) + (0.34) (\$525,000 - \$335,000) = \$178,500$.

■ Solutions to Problems

P1-1. Liability comparisons (LG 5; Basic)

- Ms. Harper has unlimited personal liability, so she is liable for the firm's \$60,000 in unpaid debts.
- Initially, Ms. Harper is liable for \$30,000 (50% of total unpaid debts). But if her partner cannot cover half the debt, Ms. Harper is liable for the full amount.
- Ms. Harper has limited liability; she cannot lose more than her \$25,000 investment.

P1-2. Accrual income vs. cash flow for a period (LG 4; 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. A financial manager will find the cash-flow statement more useful. Accounting net income includes uncollected revenues that do not contribute to owner wealth. Cash flows, not accounting profits, matter to shareholders.

P1-3. Personal finance: cash flows (LG 4; Intermediate)

- 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: Total cash inflows – Total cash outflows = $\$4,950 - \$4,357 = \$593$
- c. If Jane is facing a shortage, she could reduce spending on discretionary items such as clothing, dining out, and gas (i.e., travel less).
- d. Jane should examine anticipated cash flows in other months to verify August is typical. She may, for instance, discover expenditures not in her August budget—like large quarterly automobile-insurance expenses or large gift purchases in December. To prepare for such outlays, Jane should put the \$593 in a bank deposit or money-market account where the funds are readily accessible, and capital losses unlikely. If the \$593 will not be needed for anticipated bills, Jane should explore longer-term investment options, such as a diversified portfolio of stocks and bonds.

P1-4. Marginal benefit-marginal cost analysis and goal of the firm (LG 2 and LG 4; Challenging)

- a. Marginal benefits of proposed robotics =
Marginal benefits of new robotics – Marginal benefits of original robotics
 $\$560,000 - \$400,000 = \$160,000$
- b. Marginal cost of proposed robotics =
Marginal cost of new robotics – Sales price of current robotics
 $\$220,000 - \$70,000 = \$150,000$
- c. Net benefits of new robotics =
Marginal benefits of proposed robotics – Marginal cost of proposed robotics
 $\$160,000 - \$150,000 = \$10,000$
- d. Provided cash flows from new and existing robotics are equally risky, and either (i) cash flows from each option have the same timing or (ii) the discount (interest rate) is zero, Ken Allen should recommend new robotics because the marginal benefits exceed marginal costs.

- e. Three other important factors are cash-flow risk, cash-flow timing, and interest rates. New technology sometimes presents unique risks—new robotics, for example, could have unanticipated breakdowns that necessitate a recall—so Ken Allen should investigate the riskiness of each cash flow under the marginal-benefit and marginal-cost headings. He should also determine the exact timing of cash inflows/outflows for both options as well as the opportunity cost of funds invested (i.e., the interest rate). Timing and the interest rate are important because the project spans five years, and dollars received/spent today are worth more than dollars received/spent tomorrow.

P1-5. Identifying agency problems, costs, and resolutions (LG 6; Intermediate)

- The agency cost is wages paid to an idle employee whose responsibilities must be covered by someone else. One solution is a time clock everyone must punch when arriving for work, take a lunchbreak, and leave for the day. A punch clock would reduce agency costs by: (1) prompting the receptionist to return from lunch on time or (2) reduce wages paid for unproductive time.
- The agency costs are opportunity costs—money budgeted for inflated cost estimates that cannot be used to fund other projects to enhance shareholder wealth. One solution is rewarding managers for accurate cost estimates rather keeping actual costs below their estimates.
- The agency cost is lost shareholder wealth; the CEO might agree to sell the firm for less than fair-market value in return for a post-merger position with more income, wealth, power or visibility. One safeguard is allowing bids from other potential partners once the CEO has publicly disclosed firm interest in merging. Competitive bidding should reveal a merger price fair to shareholders.
- Part-time or temporary workers are less productive than full-time workers for two reasons: (i) new employees must learn their jobs, and (ii) fully trained employees obtain insights about improving efficiency from experience. In the short run, any decline in service caused by part-time or temporary workers would probably not drive branch customers away. And the same revenue with lower costs (from cheaper workers) will, indeed, boost profits. Over the long run, however, consistently less-productive employees will hurt profitability by reducing revenue or raising costs. One solution is rewarding managers with stock for meeting performance targets over a longer horizon (like average branch profit over the past three years).

P1-6 Corporate taxes (LG 5; Basic)

- Firm's tax liability on \$92,500 using Table 1.2:

$$\text{Total taxes due} = \$13,750 + [0.34 \times (\$92,500 - \$75,000)] = \$13,750 + \$5,950 = \$19,700$$

For students with the text updated with the latest tax information, the taxes due would be $21\% \times \$92,500 = \$19,425$.
- After-tax earnings: $\$92,500 - \$19,700 = \$72,800$. For students with the text updated with the latest tax information, after tax earnings are $\$92,500 - \$19,425 = \$73,075$.
- Average tax rate: $\$19,700 \div \$92,500 = 21.3\%$. For students with the text updated with the latest tax information, the average tax rate is $\$19,425 \div \$92,500 = 21.0\%$.
- Marginal tax rate: 34%. For students with the text updated with the latest tax information, the marginal tax rate is 21%. Notice that the marginal and average tax rates are the same under a flat tax.

P1-7 *Average corporate tax rates (LG 6; Basic)*

a. Tax calculations using Table 1.2:

\$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:	$\$13,750 + [0.34 \times (80,000 - \$75,000)]$ $= \$13,750 + \$1,700 = \$15,450$
	After-tax earnings:	$\$80,000 - \$15,450 = \$64,550$
	Average tax rate:	$\$15,450 \div \$80,000 = 19.3\%$
\$300,000:	Tax liability:	$\$22,250 + [0.39 \times (\$300,000 - \$100,000)]$ $= \$22,250 + \$78,000 = \$100,250$
	After-tax earnings:	$\$300,000 - \$100,250 = \$199,750$
	Average tax rate:	$\$100,250 \div \$300,000 = 33.4\%$
\$500,000:	Tax liability:	$\$113,900 + [0.34 \times (\$500,000 - \$335,000)]$ $= \$113,900 + \$56,100 = \$170,000$
	After-tax earnings:	$\$500,000 - \$170,000 = \$330,000$
	Average tax rate:	$\$170,000 \div \$500,000 = 34\%$
\$1,500,000:	Tax liability:	$\$113,900 + [0.34 \times (\$1,500,000 - \$335,000)]$ $= \$113,900 + \$396,100 = \$510,000$
	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:	$\$113,900 + [0.34 \times (\$10,000,000 - \$335,000)]$ $= \$113,900 + \$3,286,100 = \$3,400,000$
	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:	$\$6,416,667 + [0.35 \times (\$20,000,000 - \$18,333,333)]$ $= \$6,416,667 + 583,333 = \$7,000,000$
	After-tax earnings:	$\$20,000,000 - \$7,000,000 = \$13,000,000$
	Average tax rate:	$\$7,000,000 \div \$20,000,000 = 35\%$

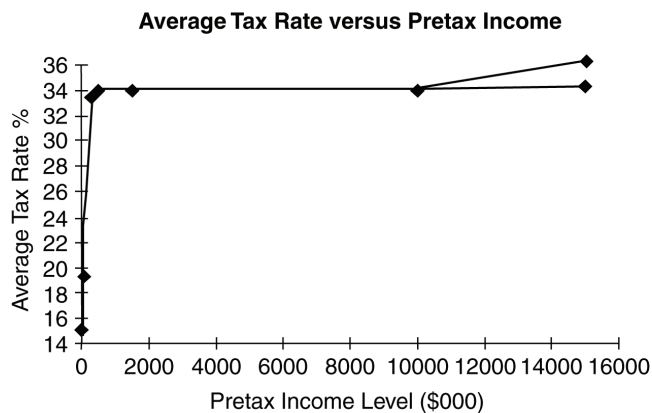
Note that the answers above apply to the version of the text that did not have updated tax information. In the revised version with new tax information, the problem was modified to ask about partnership income rather than corporate income. Partnership income is taxed at the new, 2018 individual income tax rates presented in a revised Table 1.2 (which shows tax rates for a single taxpayer). For this revised question, the appropriate answers appear below. The answers assume that the person receiving this income flowing from a partnership has no other income.

a. Tax calculations using Table 1.2:

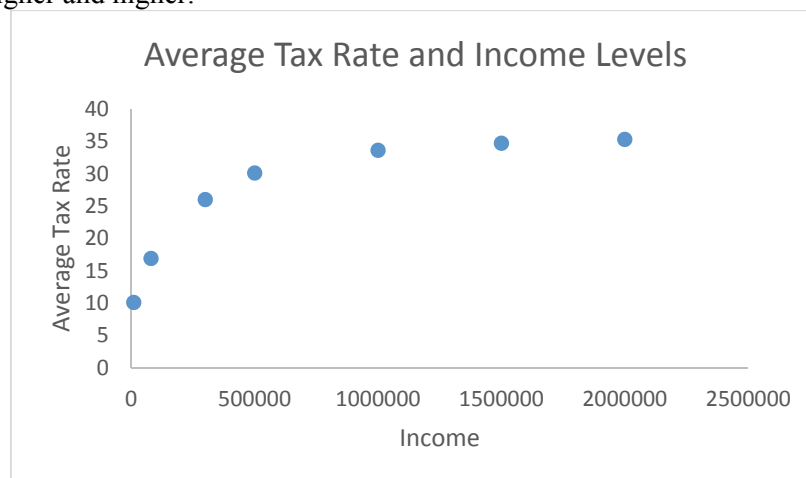
\$10,000:	Tax liability:	$\$953 + \$475 \times 0.12 = \$1,010$
	After-tax earnings:	$\$10,000 - \$1,010 = \$8,990$
	Average tax rate:	$\$1,010 \div \$10,000 = 10.1\%$
\$80,000:	Tax liability:	$\$4,454 + [0.22 \times (80,000 - \$38,700)] = \$13,540$
	After-tax earnings:	$\$80,000 - \$13,540 = \$66,460$
	Average tax rate:	$\$13,540 \div \$80,000 = 16.9\%$

\$300,000:	Tax liability:	$\$45,690 + [0.35 \times (\$300,000 - \$200,000)] = \$80,690$
	After-tax earnings:	$\$300,000 - \$80,690 = \$219,310$
	Average tax rate:	$\$80,690 \div \$300,000 = 26.9\%$
\$500,000:	Tax liability:	$\$150,690$ (just the base tax number from Table 1.2)
	After-tax earnings:	$\$500,000 - \$150,690 = \$349,310$
	Average tax rate:	$\$150,690 \div \$500,000 = 30.1\%$
\$1,000,000:	Tax liability:	$\$150,690 + [0.37 \times (\$1,000,000 - \$500,000)] = \$335,690$
	After-tax earnings:	$\$1,000,000 - \$335,690 = \$664,310$
	Average tax rate:	$\$335,690 \div \$1,000,000 = 33.6\%$
\$1,500,000:	Tax liability:	$\$150,690 + [0.37 \times (\$1,500,000 - \$500,000)] = \$520,690$
	After-tax earnings:	$\$1,500,000 - \$520,690 = \$979,310$
	Average tax rate:	$\$520,690 \div \$1,500,000 = 34.7\%$
\$2,000,000:	Tax liability:	$\$150,690 + [0.37 \times (\$2,000,000 - \$500,000)] = \$705,690$
	After-tax earnings:	$\$2,000,000 - \$705,690 = \$1,294,310$
	Average tax rate:	$\$705,690 \div \$2,000,000 = 35.3\%$

- b. The graph below pertains to the version of the text WITHOUT tax updates. As taxable corporate income rises, the average tax rate approaches 35%.



Under the new tax law, the partnership's average tax rate gets closer and closer to 37% as income goes higher and higher.



P1-8 **Marginal corporate tax rates (LG 6; Basic)**

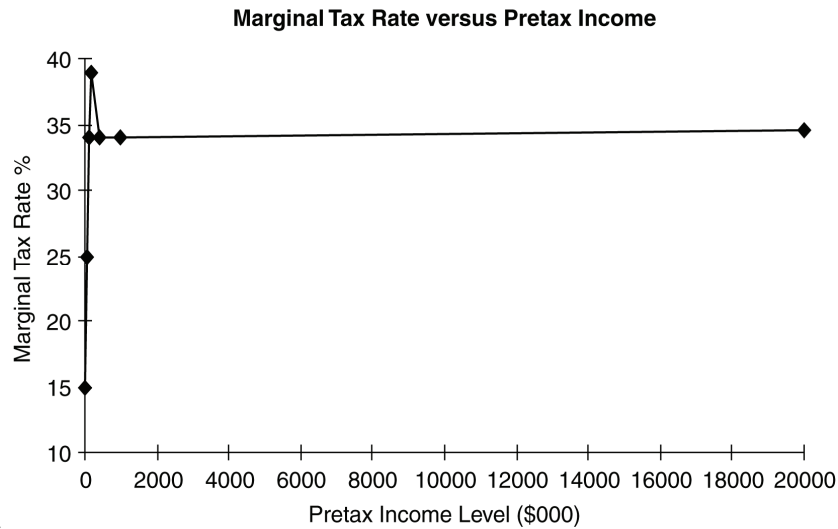


As was true in the previous problem, there are different solutions depending on whether a student has a book with updated tax information or a book with the old tax information. Below is the solution for the original version of the problem.

a.

Pre-Tax Income	Base Tax	+	%	×	Amount Over Base	=	Total Tax	Marginal Rate
\$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	×	1,666,667)	=	7,00,0000	35.0%

- b. As income rises to \$335,000, the marginal tax rate approaches a peak of 39%. For income above \$335,000, the marginal rate first dips to 34%, and then edges up to 35% after \$10 million.

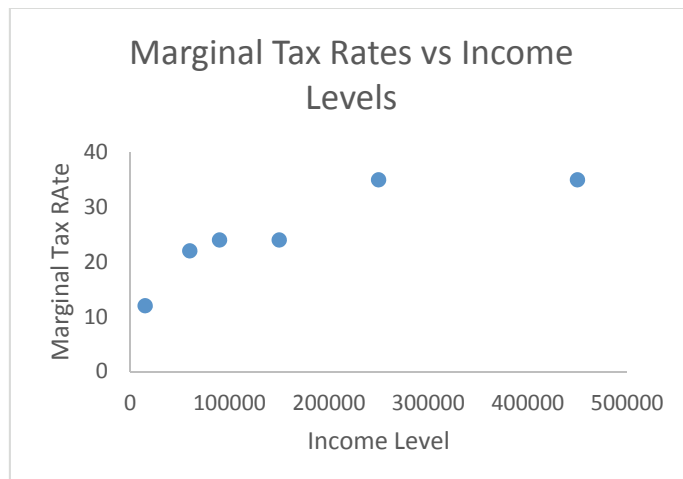


Here is a solution for the new version of the problem to reflect the updated tax code. Note that the problem was revised to focus on proprietorship income rather than corporate income, and the income levels that students were asked to work with here are slightly different than in the original problem.

- a. The marginal tax rates at the specified income levels are

Income	Marginal rate
\$15,000	12%
\$60,000	22%
\$90,000	24%
\$150,000	24%
\$250,000	35%
\$450,000	35%

- b. The marginal tax rate rises with income. The chart does not show the income level at which the highest marginal tax rate, 37%, kicks in.



P1-9 Interest vs. dividend income (LG 6; Intermediate)

The initial set of answers below pertains to the version of the text without updated tax information. Answers for the new version appear later.

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

b., c.

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

d. After-tax dividends (\$17,600) exceed after-tax interest (\$12,000) because of the 70% dividend exclusion. The exclusions increases makes purchasing the stock of other corporations more attractive relative to purchases of corporate bonds.

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>

Here are answers to the question that reflect the updated tax information in the newer printing of the book

a. The firm faces a 21% flat tax on operating earnings, so $21\% \times \$490,000 = \$102,900$.

b., c.

	(b) Interest Income	(c) Dividend Income	
Before-tax amount	\$20,000	\$20,000	
Less: Applicable exclusion	0	10,000	($0.50 \times \$20,000$)
Taxable amount	20,000	10,000	
Tax (21%)	4,200	2,100	
After-tax amount	15,800	17,900	

- d. The after-tax amount of interest was less than the after-tax dividends received because half the dividends were excluded from taxation.
- e. The firm's total tax liability is \$102,900 from operating earnings, \$4,200 from interest earnings, and \$2,100 from dividends received for a total of \$109,200

P1-10 Interest vs. dividend expense (LG 6; Intermediate)

The following answer is appropriate for the original printing of the text with old tax information. Answers for the printing with updated tax information follow.

a. EBIT	\$50,000
<u>Less: Interest expense</u>	<u>12,000</u>
Earnings before taxes	\$38,000
<u>Less: Taxes (35%)</u>	<u>13,300</u>
Earnings after taxes*	<u>\$24,700</u>

*This is also earnings available to common stockholders.

b. EBIT	\$50,000
<u>Less: Taxes (35%)</u>	<u>17,500</u>
Earnings after taxes	\$32,500
<u>Less: Preferred dividends</u>	<u>12,000</u>
Earnings available for common stockholders	<u>\$20,500</u>

Here are solutions for the printing that reflected the new tax law.

a. EBIT	\$50,000
<u>Less interest</u>	<u>12,000</u>
Pre-tax earnings	\$38,000
<u>Less taxes (21%)</u>	<u>7,980</u>
After-tax earnings	\$30,020
(all of this available to common stockholders)	
b. EBIT	\$50,000
<u>Less taxes (21%)</u>	<u>10,500</u>
After-tax earnings	\$39,500
<u>Less preferred div</u>	<u>12,000</u>
Earnings for common	\$27,500

P1-11. Reducing tax exposure—Hemingway Corporation (LG 5; Intermediate)

- a. With pre-tax income currently of \$200,000, Hemingway's current tax liability (using the tax rates in Table 1.2) is $\$22,250 + 0.39 \times (\$200,000 - \$100,000) = \$22,250 + \$39,000 = \$61,250$. Or using the newer tax code reflecting the Tax Cuts and Jobs Act, the company faces a 21% flat tax, so its tax bill is currently $21\% \times \$200,000 = \$42,000$.
- b. The current average tax rate equals taxes paid divided by taxable income—that is, $\$61,250 / \$200,000 = 0.306$ or 30.6%. Under the new tax law, however, because the tax is a flat tax, the average tax rate and the marginal tax rate are the same, 21%.

- c. If expansion is financed with cash reserves, then taxable income will be \$350,000 with a corresponding tax liability of $\$22,250 + 0.39 \times (\$350,000 - \$100,000) = \$119,750$. The average tax rate would be $\$119,750 \div \$350,000 = 34.2\%$, higher than in part b. Or under the new tax law with a 21% flat tax, the tax liability will be $21\% \times \$350,000 = \$73,500$. The average tax rate and the marginal tax rate are both 21%.
- d. If expansion is financed with debt financing, taxable income will be $\$350,000 - \$70,000 = \$280,000$. Taxes owed will equal $\$22,250 + 0.39 \times (\$280,000 - \$100,000) = \$92,450$. The new average tax rate will be $\$92,450 / \$280,000 = 0.330$ or 33.0%. The average tax rate is higher than in part b, again because added income from expansion is taxed at the marginal rate of 39%. However, the average tax rate here is lower than in part c because Hemingway's interest payments reduce its overall tax bill and, hence, its average tax rate. Put another way, with debt financing, less of the additional income is taxed at 39% than when the expansion is funded with internal cash. The previous answer is correct under the old tax law. Under the new tax law, the corporate tax is a flat 21%. Thus, Hemingway's tax will be $21\% \times (\$350,000 - \$70,000) = \$58,800$. Again, the average tax rate and the marginal tax rate are the same (21%) no matter what the income level is under a flat tax.
- e. Student answers might vary here. Under the old tax law, using debt lowers the average tax rate. Under the new law that average tax rate is always 21%. Students might say (regardless of the tax law), that income is lower when the company uses debt. That's true, but again regardless of the tax law, the amount of taxes paid is lower when debt is used. If the value of the company depends on the cash flow that it distributes to ALL investors (not just shareholders), then financing the expansion with debt might be optimal. However, there may be offsetting effects (not mentioned in this chapter) that would negate the tax benefits of debt.

P1-12. *Ethics problem (LG 2)*

Maximizing shareholder wealth subject to "ethical constraints" means pursuing all opportunities to boost stock price consistent with community ethical norms and applicable federal/state laws. "Community ethical norms" refers to prevailing standards about right and wrong. Consistent, knowing violation of such norms can reduce shareholder wealth by prompting stakeholder backlash and punitive government action. For example, in 2017 sexual mistreatment of women in the workplace became an overriding concern for many Americans. Firms with executives guilty of harassing female subordinates were vulnerable to attacks by customers, employees, lawyers, the media, and elected officials. If a firm knew an executive had a history of inappropriate behavior and took no action (believing, perhaps, the executive was irreplaceable), the backlash was even worse when the story inevitably came out. As a result, many high-profile executives were fired to head off customer boycotts, employee defections, hostile-workplace lawsuits, and political retaliation (such as Congressional hearings or targeted legislation) that could hammer the firm's stock price. Similarly, abiding by applicable federal and state laws protects shareholders wealth from punitive legal action against the firm and its executives as well as backlash from stakeholders and elected officials.

■ Case

Case studies are available on www.pearson.com/mylab/finance.

Assessing the Goal of Sports Products, Inc.

- a. The primary goal of Sports Products, Inc. should be maximizing shareholder wealth, which means taking all legal and ethical actions to get firm stock price to the highest possible level. Unlike profit maximization, maximizing stock price requires consideration of the level of cash flows (which, unlike profits, can be used to meet firm obligations) as well as the timing and riskiness of those flows.

- b. Yes, there appears to be an agency problem. In this case, the stockholders (owners) of Sports Products are the principals, and company management the agents. Stockholders want the highest possible stock price, but management compensation is directly tied to profits, not share price. So, predictably, company executives have focused on obtaining the highest possible profit, and stock price has languished.
- c. Sports Products' approach to pollution control is ethically questionable and harmful to shareholders. It is unclear whether polluting the stream was intentional or accidental; what is clear from the state-and-local-government lawsuits is the firm violated the law. In the near term, litigation and judgment costs will reduce firm stock price (other things equal). Over the longer term, the related bad publicity could damage Sports Products' relationships with customers, employees and suppliers—putting further downward pressure on share price. Had the firm been more concerned about shareholder wealth, it would have seen the wisdom in sacrificing some near-term profits to avoid sustained damage to stock price.
- d. The corporate governance system at Sports Products appears weak. A management-compensation system focused on profits, rather than stock price, indicates shareholder welfare is not a firm priority. Another sign of weak governance is management's willingness to risk an environmental disaster—and the accompanying damage to shareholder wealth—to avoid higher pollution-control costs (and somewhat lower profits).
- e. Recommendations to Sports Products could include:
 - Overhauling management compensation to strengthen incentives to focus on shareholder interests. Specifically, Sports Products should consider distributing stock options to executives or awarding large bonuses based on performance-based metrics related to share price (like earnings per share or growth in earnings per share).
 - Introducing an explicit system of “carrots and stocks” to reward ongoing management/employee compliance with federal and state laws (particularly those pollution-related) and punish transgressions.
 - Establishing a corporate ethics policy, to be read and signed by all employees, along with a system of “carrots and stocks” to reward ongoing management/employee compliance and punish transgressions.
 - Recruiting new board members to enact policies to change the corporate culture to focus on shareholder wealth and good corporate citizenship.

■ Spreadsheet Exercise

Answers to Chapter 1 spreadsheet problem (Monsanto) are available on www.pearson.com/mylab/finance.

■ Group Exercise

Group exercises are available on www.pearson.com/mylab/finance.

Notes for Adopters

Group exercises offer students an opportunity to apply chapter topics in a real-world setting using one fictional and one actual company. Apart from reinforcing learning goals, this approach gives students valuable experience working in teams—as both leader and follower. Assignments can be easily modified to fit an adopter's course goals. Students should enjoy these exercises; they have less structure than traditional homework and compellingly answer the age-old question: “Why must I learn this?”

The first practical issue is assembling groups—should the instructor assign students to groups or let students form their own? This project is semester-long, so group members must work well together for months. If

students choose, they are more likely to get along—but at the cost of less intra-group diversity. A hybrid strategy is asking students to pair-off and then randomly combining student-selected pairs into larger groups.

The next issue is determining group size and leaders. Exercises generate workloads suitable for three or more students. Larger groups reduce individual workloads but facilitate “slacking.” Apart from missing a learning opportunity, slackers create resentment over unequal contributions to team output. Managing larger groups can also be a challenge for students with little leadership experience. For these reasons, group size should be capped at five. As for selecting CEOs, rotation inside the group gives each student an opportunity to lead.

One final note—exercises were designed to give students the freedom to work largely independent of the instructor. Accordingly, instructions for each assignment are self-explanatory.

Chapter 1

This first chapter asks students to name and describe their fictional firm. They must then justify the decision to go public and discuss different managerial roles within their firm. The group must select a publicly held peer (shadow firm) in a related industry with a wealth of online information (including detailed financials).

The instructor should stress the importance of laboring over initial decisions because later work builds on them. For example, the choice of shadow firm should be weighed carefully because students will apply real-world information about their shadow firm to their fictitious firm. A good first step in narrowing candidates is starting with a familiar industry.