Principles of Managerial Finance Solution
Lawrence J. Gitman

PART 1

Introduction to Managerial Finance

CHAPTERS IN THIS PART

CHAPTER 1

The Role and Environment of Managerial Finance

INSTRUCTOR'S RESOURCES

Overview

This chapter introduces the student to the field of finance and explores career opportunities in both financial services and managerial finance. The three basic legal forms of business organization (sole proprietorship, partnership, and corporation) and their strengths and weaknesses are described, as well as the relationship between major parties in a corporation. The managerial finance function is defined and differentiated from economics and accounting. The chapter then summarizes the three key activities of the financial manager: financial analysis and planning, investment decisions, and financing decisions. A discussion of the financial manager's goals – maximizing shareholder wealth and preserving stakeholder wealth – and the role of ethics in meeting these goals is presented. The chapter includes discussion of the agency problem – the conflict that exists between managers and owners in a large corporation. Money and capital markets and their major components are introduced in this chapter. The final section covers a discussion of the impact of taxation on the firm's financial activities.

PMF DISK

This chapter's topics are not covered on the *PMF Tutor*, *PMF Problem-Solver*, or the *PMF Templates*.

Study Guide

The following *Study Guide* example is suggested for classroom presentation:

Example	Topic
1	Earnings per share
3	Income tax calculation

ANSWERS TO REVIEW QUESTIONS

1-1 *Finance* is the art and science of managing money. Finance affects all individuals, businesses, and governments in the process of the transfer of money through institutions, markets, and instruments.

1-2 *Financial services* is the area of finance concerned with the design and delivery of advice and financial products to individuals, businesses, and government.

Managerial finance encompasses the functions of budgeting, financial forecasting, credit administration, investment analysis, and funds procurement for the firm. Managerial finance is the management of the firm's funds within the firm. This field offers many career opportunities, including financial analyst, capital budgeting analyst, and cash manager (Note: Other answers possible).

1-3 Sole proprietorships are the most common form of business organization, while corporations are responsible for the majority of business receipts and profits. Corporations account for the majority of business receipts and profits because they receive certain tax advantages and can expand more easily due to access to capital markets.

1-4 Stockholders are the true owners, through equity in common and preferred stock, of a corporation. They elect the board of directors, which has the ultimate authority to guide corporate affairs and set general policy. The board is usually composed of key corporate personnel and outside directors. The president (CEO) reports to the board. He or she is responsible for day-to-day operations and carrying out policies established by the board. The owners of the corporation do not have a direct relationship with management but give their input through the election of board members and voting on major charter issues. The owners of the firm are compensated through the receipt of cash dividends paid by the firm or by realizing capital gains through increases in the price of their common stock shares.

1-5 The most popular form of limited liability organizations other than corporations are:

- ➢ Limited partnerships – A partnership with at least one general partner with unlimited liability and one or more limited partners that have limited liability. In return for the limited liability, the limited partners are prohibited from active management of the partnership.
- ➢ S corporation – If certain requirements are met, the S corporation can be taxed as a partnership but receive most of the benefits of the corporate form of organization.
- ➢ Limited liability corporation (LLC) – This form of organization is like an S corporation in that it is taxed as a partnership but primarily functions like a corporation. The LLC differs from the S corporation in that it is allowed to own other corporations and be owned by other corporations, partnerships, and non-U.S. residents.
- ➢ Limited liability partnership (LLP) – A partnership form authorized by many states that gives the partners limited liability from the acts of other partners, but not from personal individual acts of malpractice. The LLP is taxed as a partnership. This form is most frequently used by legal and accounting professionals.

These firms generally do not have large numbers of owners. Most typically have fewer than 100 owners.

1-6 Virtually every function within a firm is in some way connected with the receipt or disbursement of cash. The cash relationship may be associated with the generation of sales through the marketing department, the incurring of raw material costs through purchasing, or the earnings of production workers. Since finance deals primarily with management of cash for operation of the firm every person within the firm needs to be knowledgeable of finance to effectively work with employees of the financial departments.

1-7 The treasurer or financial manager within the mature firm must make decisions with respect to handling financial planning, acquisition of fixed assets, obtaining funds to finance fixed assets, managing working capital needs, managing the pension fund, managing foreign exchange, and distribution of corporate earnings to owners.

1-8 Finance is often considered a form of applied economics. Firms operate within the economy and must be aware of economic principles, changes in economic activity, and economic policy. Principles developed in economic theory are applied to specific areas in finance. From macroeconomics comes the institutional structure in which money and credit flows take place. From microeconomics, finance draws the primary principle used in financial management, marginal analysis. Since this analysis of marginal benefits and costs is a critical component of most financial decisions, the financial manager needs basic economic knowledge.

1-9 **a**. Accountants operate on an accrual basis, recognizing revenues at the point of sale and expenses when incurred. The financial manager focuses on the actual inflows and outflows of cash, recognizing revenues when actually received and expenses when actually paid.

b. The accountant primarily gathers and presents financial data; the financial manager devotes attention primarily to decision making through analysis of financial data.

1-10 The two key activities of the financial manager as related to the firm's balance sheet are:

(1) Making investment decisions: Determining both the most efficient level and the best mix of assets; and

(2) Making financing decisions: Establishing and maintaining the proper mix of short- and long-term financing and raising needed financing in the most economical fashion.

Making investment decisions concerns the left-hand side of the balance sheet (current and fixed assets). Making financing decisions deals with the right-hand side of the balance sheet (current liabilities, long-term debt, and stockholders' equity).

1-11 Profit maximization is not consistent with wealth maximization due to: (1) the timing of earnings per share, (2) earnings which do not represent cash flows available to stockholders, and (3) a failure to consider risk.

1-12 *Risk* is the chance that actual outcomes may differ from expected outcomes. Financial managers must consider both risk and return because of their inverse effect on the share price of the firm. Increased risk may decrease the share price, while increased return may increase the share price.

1-13 The *goal of the firm*, and therefore all managers, is to maximize shareholder wealth. This goal is measured by share price; an increasing price per share of common stock relative to the stock market as a whole indicates achievement of this goal.

1-14 Mathematically, *economic value added* (*EVA*) is the after-tax operating profits a firm earns from an investment minus the cost of funds used to finance the investment. If the resulting value is positive (negative), shareholders wealth is increased (decreased) by the investment. EVA is used for determining if an existing or planned investment will result in an increase in shareholder wealth, and should thus be continued in order to fulfill the financial management function of maximizing shareholder wealth.

1-15 In recent years the magnitude and severity of "white collar crime" has increased dramatically, with a corresponding emphasis on prosecution by government authorities. As a result, the actions of all corporations and their executives have been subjected to closer scrutiny. This increased scrutiny of this type of crime has resulted in many firms establishing corporate ethics guidelines and policies to cover employee actions in dealing with all corporate constituents. The adoption of high ethical standards by a corporation strengthens its competitive position by reducing the potential for litigation, maintaining a positive image, and building shareholder confidence. The result is enhancement of long-term value and a positive effect on share price.

1-16 Market forces – for example, shareholder activism from large institutional investors – can reduce or avoid the agency problem because these groups can use their voting power to elect new directors who support their objectives and will act to replace poorly performing managers. In this way, these groups place pressure on management to take actions that maximize shareholder wealth.

The threat of hostile takeovers also acts as a deterrent to the agency problem. *Hostile takeovers* occur when a company or group not supported by existing management attempts to acquire the firm. Because the acquirer looks for companies that are poorly managed and undervalued, this threat motivates managers to act in the best interests of the firm's owners.

1-17 Firms incur *agency costs* to prevent or minimize agency problems. It is unclear whether they are effective in practice. The four categories of agency cost are *monitoring expenditures* incurred by the owners for audit and control procedures, *bonding expenditures* to protect against the potential consequences of dishonest acts by managers, *structuring expenditures* that use managerial compensation plans to provide financial incentives for managerial actions consistent with share price maximization, and *opportunity costs* resulting from the difficulties typically encountered by large organizations in responding to new opportunities.

Structuring expenditures are currently the most popular way to deal with the agency problem – and also the most powerful and expensive. Compensation plans can be either incentive or performance plans. *Incentive plans* tie management performance to share price. Managers may receive stock options giving them the right to purchase stock at a set price. This provides the incentive to take actions that maximize stock price so that the price will rise above the option's price level. This form of compensation plan has fallen from favor recently because market behavior, which has a significant effect on share price, is not under management's control. As a result, *performance plans* are more popular today. With these, compensation is based on performance measures, such as earnings per share (EPS), EPS growth, or other return ratios. Managers may receive *performance shares* and/or *cash bonuses* when stated performance goals are reached.

In practice, recent studies have been unable to document any significant correlation between CEO compensation and share price.

1-18 The key participants in financial transactions are *individuals, businesses, and governments*. These parties participate both as suppliers and demanders of funds. Individuals are net suppliers, which means that they save more dollars than they borrow, while both businesses and governments are net demanders since they borrow more than they save. One could say that individuals provide the excess funds required by businesses and governments.

1-19 *Financial markets* provide a forum in which suppliers of funds and demanders of loans and investments can transact business directly.

Primary market is the name used to denote the fact that a security is being issued by the demander of funds to the supplier of funds. An example would be Microsoft Corporation selling new shares of common stock to the public.

Secondary market refers to the trading of securities among investors subsequent to the primary market issuance. In secondary market trading, no new funds are being raised by the demander of funds. The security is trading ownership among investors. An example would be individual “A” buying common stock of Microsoft through a broker.

Financial institutions and financial markets are not independent of each other. It is quite common to find financial institutions actively participating in both the money market and the capital market as both suppliers and demanders of funds. Financial institutions often channel their investments and obtain needed financing through the financial markets. This relationship exists since these institutions must use the structure of the financial marketplace to find a supplier of funds.

1-20 The *money market* is a financial relationship between the suppliers and demanders of short-term debt securities maturing in one year or less, such as U.S. Treasury bills, commercial paper, and negotiable certificates of deposit. The money market has no one specific physical location. Typically the suppliers and demanders are matched through the facilities of large banks in New York City and through government securities dealers.

1-21 The *Eurocurrency market* is the international equivalent of the U.S. money market and is used for short-term bank time deposits denominated in dollars or other major currencies. These deposits can be lent by the banks to creditworthy corporations, governments, or other banks at the London Interbank Offered Rate (LIBOR) – the base rate used for all Eurocurrency loans.

1-22 The *capital market* is a financial relationship created by a number of institutions and arrangements that allows the suppliers and demanders of long-term funds (with maturities greater than one year) to make transactions. The key securities traded in the capital markets are bonds plus common and preferred stock.

1-23 Securities exchanges provide a forum for debt and equity transactions. They bring together demanders and suppliers of funds, create a continuous market for securities, allocate scarce capital, determine and publicize security prices, and aid in new financing.
The *over-the-counter market* is not a specific institution, but rather an intangible market for the buyers and sellers of securities not listed on the major exchanges. The dealers are linked with purchasers and sellers through the National Association of Securities Dealers Automated Quotation System (NASDAQ), a complex telecommunications network. Prices of traded securities are determined by both competitive bids and negotiation. The over-the-counter market differs from organized security exchanges in its lack of a physical trading location and the absence of listing and membership requirements.

1-24 In addition to the U.S. capital markets, corporations can raise debt and equity funds in capital markets located in other countries. The *Eurobond market* is the oldest and largest international debt market. Corporate and government bonds issued in this market are denominated in dollars or other major currencies and sold to investors outside the country in whose currency the bonds are denominated. Foreign bond markets also provide corporations with the opportunity to tap other capital sources. Corporations or governments issue bonds denominated in the local currency and sold only in that home market. The *international equity market* allows corporations to sell blocks of stock to investors in several countries, providing a diversified investor base and additional opportunities to raise larger amounts of capital.

1-25 An *efficient market* will allocate funds to their most productive uses due to competition among wealth-maximizing investors. Investors determine the price of assets through their participation in the financial markets and publicize those prices that are believed to be close to their true value.

1-26 The *ordinary income* of a corporation is income earned through the sale of a firm's goods or services. Taxes on corporate ordinary income have two components: a fixed amount on the base figure for its income bracket level, plus a progressive percentage, ranging from 15% to 39%, applied to the excess over the base bracket figure. A *capital gain* occurs when a capital asset is sold for more than its initial purchase price. Capital gains are added to ordinary income and taxed at the regular corporate rates. The *average tax rate* is calculated by dividing taxes paid by taxable income. For firms with taxable income of $10 million or less, it ranges from 15 to 34 percent. For firms with taxable income in excess of $10 million, it ranges between 34 and 35 percent. The *marginal tax rate* is the rate at which additional income is taxed.

1-27 *Intercorporate dividends* are those received by a corporation for stock held in other corporations. To avoid triple taxation, if ownership is less than 20%, these dividends are subject to a 70% exclusion for tax purposes. (The exclusion percentage is higher if ownership exceeds 20%.) Since interest income from intercorporate bond investments is taxed in full, this tax exclusion increases the attractiveness of stock investments over bond investments made by one corporation in another.

1-28 The tax deductibility of corporate expenses reduces their actual after-tax cost. Corporate interest is a tax-deductible expense, while dividends are not.

1-29 The purpose of a *tax loss carryback* and *carryforward* is to provide a more equitable tax treatment for corporations that are experiencing volatile patterns of income. It is particularly attractive for firms in cyclical businesses such as construction. To illustrate a loss carryback, assume a firm had a positive taxable income in 2000 and 2001 and then experienced a negative taxable income in 2002. The negative amount can first be used to reduce the 2000 taxable income by the amount of the tax loss to as low as zero. If any tax loss from 2002 remains, it can be applied against the 2001 taxable income until the loss is exhausted or 2001 taxable income reaches zero. A tax refund will then be obtained for 2000 and 2001 for the taxes previously paid. Any remaining loss would have to wait for the 2003 tax year to see if it needs to be carried forward.

SOLUTION TO PROBLEMS

1-1 LG 1: Liability Comparisons

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.

1-2 LG 2, 4: The Managerial Finance Function and Economic Value Added

a.

Benefits from new robotics	$560,000
Benefits from existing robotics	400,000
Marginal benefits	$160,000

b.

Initial cash investment	$220,000
Receipt from sale of old robotics	70,000
Marginal cost	$150,000

c.

Marginal benefits	$160,000
Marginal cost	150,000
Net benefits	$ 10,000

d. Ken should recommend that the company replace the old robotics with the new robotics. Since the EVA is positive, the wealth of the shareholders would be increased by accepting the change.

e. EVA uses profits as the estimate of cost and benefits. Profits ignore the important points of timing, cash flow, and risk, three important factors to determining the true impact on shareholders' wealth.

1-3 LG 2: Annual Income versus Cash Flow for a Period

a.

Sales	$760,000
Cost of good sold	300,000
Net profit	$460,000

b.

Cash Receipts	$690,000
Cost of good sold	300,000
Net cash flow	$390,000

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.

1-4 LG 4: Identifying Agency Problems, Costs, and Resolutions

a. In this case the employee is being compensated for unproductive time. The company has to 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 which 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 which 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.

1-5 LG 6: Corporate Taxes

a. Firm's tax liability on $92,500 (from Table 1.4):

Total taxes due	=	$13,750 + [.34 x ($92,500 - $75,000)]
	=	$13,750 + (.34 x $17,500)
	=	$13,750 + $5,950
	=	$19,700

b. After-tax earnings: $92,500 - $19,700 = $72,800

c. Average tax rate: $19,700 ÷ $92,500 = 21.3%

d. Marginal tax rate: 34%

1-6 LG 6: Average Corporate Tax Rates

a. Tax calculations using Table 1.4:

$10,000: Tax liability: $10,000 x .15 = $1,500
After-tax earnings: $10,000 - $1,500 = $8,500
Average tax rate: $1,500 ÷ $10,000 = 15%

$80,000: Tax liability: $13,750 + [.34 x (80,000 - $75,000)]
$13,750 + (.34 x $5,000)
$13,750 + $1,700
$15,450 = Total tax

After-tax earnings: $80,000 - $15,450 = $64,550
Average tax rate: $15,450 ÷ $80,000 = 19.3%

$300,000: Tax liability: $22,250 + [.39 x ($300,000 - $100,000)]
$22,250 + (.39 x $200,000)
$22,250 + $78,000
$100,250 = Total tax

After-tax earnings: $300,000 - $100,250 = $199,750
Average tax rate: $100,250 ÷ $300,000 = 33.4%

$500,000: Tax liability: $113,900 + [.34 x ($500,000 - $335,000)] $113,900 + (.34 x $165,000)
$113,900 + $56,100
$170,000 = Total tax

After-tax earnings: $500,000 - $170,000 = $330,000
Average tax rate: $170,000 ÷ $500,000 = 34%

$1,500,000: Tax liability: $113,900 + [.34 x ($1,500,000 - $335,000)]
$113,900 + (.34 x $1,165,000)
$113,900 + $396,100
$510,000 = Total tax

After-tax earnings: $1,500,000 - $510,000 = $990,000
Average tax rate: $510,000 ÷ $1,500,000 = 34%

$10,000,000: Tax liability: $113,900 + [.34 x ($10,000,000 - $335,000)]
$113,900 + (.34 x $9,665,000)
$113,900 + $3,286,100
$3,400,000 = Total tax

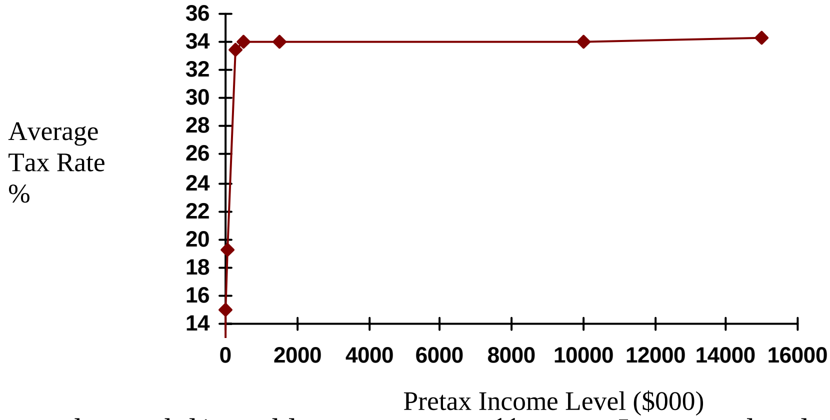
After-tax earnings: $10,000,000 - $3,400,000 = $6,600,000
Average tax rate: $3,400,000 ÷ $10,000,000 = 34%

$15,000,000: Tax liability: $3,400,000 + [.34 x ($15,000,000 - $10,000,000)]
$3,400,000 + (.34 x $5,000,000)
$3,400,000 + $1,750,000
$5,150,000 = Total tax

After-tax earnings: $15,000,000 - $5,150,000 = $9,850,000
Average tax rate: $5,150,000 ÷ $15,000,000 = 34.33%

b.

Average Tax Rate versus Pretax Income



As income increases, the rate approaches but does not reach 35%.

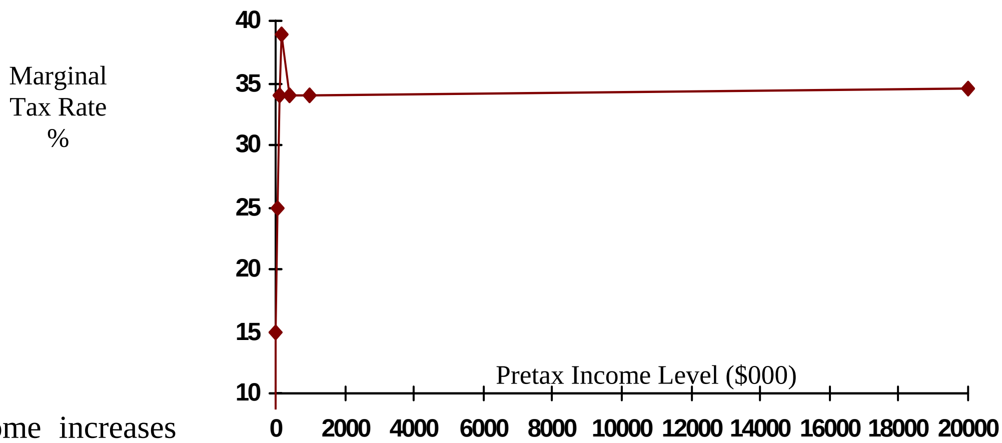
1-7 LG 6: Marginal Corporate Tax Rates

a.

	Tax Calculation							
Pretax Income	Base Tax	+	%	x	Amount over Base	=	Tax	Marginal Rate
$ 15,000	$ 0	+	(.15	x	15,000)	=	$ 2,250	15.0%
60,000	7,500	+	(.25	x	10,000)	=	10,000	25.0%
90,000	13,750	+	(.34	x	15,000)	=	18,850	34.0%
200,000	22,250	+	(.39	x	100,000)	=	61,250	39.0%
400,000	113,900	+	(.34	x	65,000)	=	136,000	34.0%
1,000,000	113,900	+	(.34	x	665,000)	=	340,000	34.0%
20,000,000	3,400,000	+	(.35	x	10,000,000)	=	6,900,000	35.0%

b.

Marginal Tax Rate versus Pretax Income



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%.

1-8 LG 6: Interest versus Dividend Income

a. Tax on operating earnings: $490,000 x .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	(.70 x $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.**)	2,400
Total tax liability	$206,400

1-9 LG 6: Interest versus Dividend Expense

a.

EBIT	$40,000
Less: Interest expense	10,000
Earnings before taxes	$30,000
Less: Taxes (40%)	12,000
Earnings after taxes*	$18,000

* This is also earnings available to common stockholders.

b.

EBIT	$40,000
Less: Taxes (40%)	16,000
Earnings after taxes	$24,000
Less: Preferred dividends	10,000
Earnings available for common stockholders	$14,000

1-10 LG 6: Capital Gains Taxes

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 x .40 = $ 100

Asset Y = $5,000 x .40 = $2,000

1-11 LG 6: Capital Gains Taxes

a. and b.

Asset	Sale Price (1)	Purchase Price (2)	Capital Gain (1) - (2) (3)	Tax (3) x .40 (4)
A	$ 3,400	$ 3,000	$ 400	$ 160
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

CHAPTER 1 CASE
Assessing the Goal of Sports Products, Inc.

a. 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.

b. 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.

c. 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.

d. 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.

(Other answers are, of course, possible.)