

INSTRUCTOR'S MANUAL
to accompany

**PRINCIPLES OF
MANAGERIAL FINANCE**

by
Lawrence J. Gitman

with **MULTIPLE-CHOICE
QUESTIONS**

by **Ross A. Flaherty**

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by
LAWRENCE J. GITMAN
The University of Tulsa
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MULTIPLE-CHOICE QUESTIONS

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TABLE OF CONTENTS

CHAPTER (Number)	PEDAGOGICAL OBJECTIVE (Page No.)	ANSWERS TO TEXT QUESTIONS (Page No.)	SOLUTIONS TO TEXT PROBLEMS (Page No.)	MULTIPLE-CHOICE QUESTIONS (Page No.)
1	1	1	2	217
2	3	3	5	223
3	13	13	15	230
4	19	19	21	236
5	28	28	30	241
6	36	36	38	246
7	44	44	47	251
8	51	51	53	256
9	57	57	59	262
10	64	64	66	267
11	71	71	73	271
12	81	81	84	275
13	90	90	93	279
14	105	105	108	285
15	120	120	123	289
16	129	129	133	295
17	140	140	143	299
18	147	147	150	306
19	152	152	155	311
20	158	158	161	316
21	166	166	170	321
22	174	174	177	327
23	182	182	185	334
24	191	191	194	338
25	199	199	203	343
26	209	209	212	347

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PREFACE

My overall objective in writing PRINCIPLES OF MANAGERIAL FINANCE was to create a truly teachable text that would convey the key concepts of financial management in a way that can be easily read and comprehended by the student.

The text is structured around the firm's balance sheet, which is used repeatedly as a reference point. Although the book was intended to be read as a continuous stream of thought, almost any chapter may be taken out of sequence and covered as a self-contained unit. The comparatively manageable size of this book makes it suitable for a variety of course lengths; each professor will want to adjust the breadth of coverage to fit his/her own time parameters.

Questions and Problems. A comprehensive set of questions and problems has been included at the end of each text chapter. Comprehensive answers to all end-of-chapter questions and detailed solutions to all end-of-chapter problems are included in this manual. In chapters where a series of related concepts is presented, corresponding end-of-chapter problems are interrelated to allow a review of the concepts on a step-by-step basis.

Examination Questions. At the end of this manual, over 800 multiple-choice questions (with the correct answers marked) have been included. They are presented in a chapter-by-chapter sequence, with approximately thirty questions per chapter.

Two additional teaching aids have been developed and published simultaneously with this text to provide a complete teaching package. In STUDY GUIDE to accompany PRINCIPLES OF MANAGERIAL FINANCE, I have prepared a chapter summary, a chapter outline, a programmed self-test, and problems with detailed solutions for each chapter. CASES IN MANAGERIAL FINANCE, written by Ross A. Flaherty of the University of Texas at Arlington, Timothy E. Johnson of the University of Cincinnati, and myself, presents 41 short cases that may be used to develop the student's ability to apply concepts presented in the text. A separate instructor's manual accompanies this casebook.

Since each professor has his/her own unique disposition toward the coverage and presentation of material, it is difficult, even with the aid of a large number of excellent reviewers, to create a text that is perfectly acceptable to all users. I would greatly appreciate receiving any questions, criticisms, or suggestions for improvement pertaining to the text, instructor's manual, casebook, and/or study guide.

Lawrence J. Gitman
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CHAPTER 1

THE ROLE OF FINANCE AND THE FINANCIAL MANAGER

PEDAGOGICAL OBJECTIVES

This chapter sets the stage by exposing the student to the role of finance and the financial manager. In order to provide a clear point of reference, finance is differentiated from the fields of economics and accounting. The key functions of the financial manager are also described. The student is presented with the goal of wealth maximization, a theme which is used throughout the text. A final section discusses the general approach and organization of the text.

ANSWERS TO TEXT QUESTIONS

1-1 Finance is often considered a form of applied economics. From macroeconomics comes the institutional structure in which money and credit flows take place. From microeconomics finance draws various profit maximization guidelines, which relate to the overall theory of the firm.

1-2 The financial manager depends upon the accountant for data describing the firm's past, present and possibly future performance. The financial manager uses this somewhat standardized data obtained from the accountant as an input to his decision-making process.

1-3 a) Accountants operate on an *accrual basis* — recognizing revenues at the point of sale and expenses when incurred; while, the financial manager operates on a *cash flow basis* recognizing revenues when actually received and expenses when actually paid.

b) The accountant is primarily a gatherer and presenter of financial data; while, the financial manager devotes his attention primarily to decision-making.

1-4 a) The finance function in the small firm is usually devoted to credit decisions and is performed within the firm's accounting department. As the firm grows, the finance function becomes much broader and eventually will become an autonomous organizational unit.

b) The financial manager within the mature firm must make decisions with respect to acquisition of fixed assets, obtaining funds to finance fixed assets, and decisions concerning the distribution of corporate earnings to owners.

1-5 The three functions of the financial manager in light of the firm's financial statement are:

1) *Analysis of Data*, which is performed on accounting and internal information in order to monitor the firm's progress;

2) *Determination of Asset Structure*, which is concerned with maintaining the proper mix of assets and acquiring the best assets for a given function;

3) *Determination of Financial Structure*, which is concerned with maintaining the proper financial mix and raising financing in the most economical fashion.

1-6 The goal of the financial manager should be to *maximize the owners' wealth*. The goal of wealth maximization is *not* necessarily consistent with that of profit maximization. The chief conflict between these goals results since profit maximization is a *short-run* concept; while, wealth maximization is a *long-run* concept.

1-7 Profitability does not guarantee survival since the firm must also maintain liquidity. Sufficient cash to pay bills when due is needed in order to survive. A firm could have high profits but insufficient cash to meet payments, thereby resulting in its failure. This type result can occur since profits are an accounting figure based upon accrual concepts; while, the ability to pay bills when due is dependent upon cash flows.

SOLUTIONS TO TEXT PROBLEMS

NOTE: This chapter does not contain any problems due to the highly descriptive nature of the material presented.

CHAPTER 2

THE LEGAL, OPERATING, AND TAX ENVIRONMENT OF THE FIRM

PEDAGOGICAL OBJECTIVES

This chapter presents some of the key legal, operating and tax considerations affecting the firm's operations. The first section describes and differentiates between the key forms of business organization placing special emphasis on the corporation. The types and cash flow effects of depreciation along with a discussion of interest and dividends are presented in the second section. The final section acquaints the student with corporate taxation. An understanding of the environment in which the firm operates should allow the student to better grasp the concepts presented in subsequent chapters.

ANSWERS TO TEXT QUESTIONS

2-1 A *sole proprietorship* is a single owner doing business by himself; while, a *partnership* is two or more individuals doing business together. The incomes of both the sole proprietorship and partnership are taxed as the owners' personal incomes. A *corporation* is a legal entity created by law and taxed in a specified fashion. Sole proprietorships are the most common form of business organization while corporations are responsible for the majority of business receipts and profits.

2-2 With *unlimited liability*, owners of a firm can lose more than their initial investments in the business; while, with *limited liability*, owners can lose only their initial investment in the business. Sole proprietors and partners have unlimited liability; while, corporate shareholders have limited liability. Partners in a partnership usually have *joint and several liability*, which means that the partners may not share equally in losses; but rather, their share of losses may be dependent upon the ability to pay.

2-3 A corporation is a "legal entity" because it is treated as a person by the law. It can sue and be sued, and make and be party to contracts. A corporation is chartered by its initial owners, who petition the state by submitting its charter and name. If the name is unique to that state and the charter is in order, the corporation is placed in existence.

2-4 Corporate owners are called *stockholders*. Corporate owners can vote in corporate elections and receive distributions of both earnings or assets after all other claims are satisfied. Owners elect the directors, who appoint the officers, whose responsibility it is to carry out policies set by the directors.

2-5 Corporations can grow to large size due to the fact that

ownership can be sold to numerous individuals since they receive the protection of limited liability, which limits their losses to the amount of their investment. By selling ownership they can increase borrowing power, thereby raising large sums of money to finance growth.

2-6 Depreciation is a cash inflow to the firm since it is treated as a *non-cash expenditure* on the income statement. This reduces the firm's cash outflows for tax purposes. *Cash flow from operations* can be found by adding depreciation and other non-cash charges back to profits after taxes. Since depreciation is deducted for tax purposes but does not actually require any cash outlay, it must be added back in order to get a true picture of operating cash flows.

2-7 Straight line depreciation is calculated by dividing the depreciable amount by the life of the asset. *Double-declining balance* depreciation is calculated by writing off an amount of the book value equal to twice the straight line rate. *Sum-of-the-years'-digits* depreciation is calculated using a formula which establishes an accelerated schedule of depreciation. Double-declining balance and sum-of-the-years'-digits depreciation are accelerated methods since they cause high early-year depreciation, thereby increasing early-year cash flows.

2-8 Interest, which is a payment for borrowing, is treated as a tax-deductible expenditure; while, dividends, which are a distribution of earnings to owners, must be paid from after-tax profits. The key difference between interest and dividends is that interest is a payment to lenders for borrowing and dividends are payments to owners on their invested funds.

2-9 Normal income is made on the firm's operations or through recapturing depreciation on the sale of an asset while a capital gain results from selling an asset held for six months or more above its initial purchase price. Normal income is taxed at a rate of 22 percent on the first \$25,000 and 48 percent for earnings above \$25,000; while, capital gains are taxed at a flat rate of 30 percent or the firm's normal tax rate.

2-10 The average tax rate is found by dividing the firm's taxes by its taxable income; while, the marginal tax rate is merely the rate at which taxes will be levied on each additional dollar of taxable income. The average tax rate is in a sense historical; while, the marginal tax rate is a more forward-looking concept.

2-11 a) If the asset had been held for six months or more, the firm would receive capital gain treatment on the amount by which the sale price exceeded the initial purchase price; the remainder of the gain would be taxed as normal income.

b) There would be no capital gain but the amount of depreciation recaptured, if any, would be taxed as normal income.

c) This is what should happen according to the IRS. There would be no taxes — capital gain or normal — in this case.

2-12 Operating losses and losses on the sale of depreciable assets can both be carried back three years and forward five years and applied against normal operating income. Capital losses, which result from the sale of assets not used in the business or trade, can be

carried back three years and forward five years but can be applied only against capital gains.

2-13 The investment tax credit is used to stimulate fixed asset investments by business in the hope of increasing economic activity and fostering economic growth. It allows the purchaser of eligible equipment to receive credits against their tax liabilities in the year the equipment is acquired, therefore reducing the firm's total tax liability.

2-14 Corporations with ten or less stockholders that are taxed as partnerships. Filing under Subchapter S may allow a small firm to receive the tax benefits of a partnership while still giving owners limited liability.

2-15 Corporations make estimated tax payments on the 15th of April, June, September and December in order to, in a sense, pay taxes as they are accrued. Any additional payments or refunds based upon the actual income must be settled by the 15th of March of the following year.

SOLUTIONS TO TEXT PROBLEMS

- 2-1 a) Mr. Jones would pay \$50,000 of his own money.
 b) Mr. Smith would pay \$20,000, Mr. Jones would pay \$30,000 and Mr. Jones would have a legal claim against Mr. Smith for \$5,000.
 c) Mr. Jones does not have to pay anything.

2-2	Profits After Taxes	\$50,000
	+ Depreciation	30,000
	+ Amortization	5,000
	Cash Flow from Operations	<u>\$85,000</u>

Cash Flows might exceed A/T profits since non-cash expenditure such as depreciation and amortization act as tax shields.

2-3	Profits After Taxes	\$130,000.00
	+ Depreciation A*	16,000.00
	+ Depreciation B**	28,571.42
	Cash Flow from Operations	<u>\$174,571.42</u>

$$*\$80,000 \div 5 = \$16,000$$

$$**6 + 5 + 4 + 3 + 2 + 1 = 21$$

$$3/21 \times \$200,000 = \$28,571.42$$

2-4 Straight Line = $\frac{\$75,000}{5} = \$15,000/\text{YR}$

Double Declining Balance

YR	(1) (3) - (2) yr-1 B.V.	(2) Rate	(3) (1) x (2) Depr.
1	\$75,000	2/5	\$30,000
2	45,000	2/5	18,000
3	27,000	2/5	10,800
4	16,200	2/5	6,480
5	9,720	-	9,720

Sum of the Years' Digits

	(1)	(2)	(3)
YR	Factor	Purchase Price	(1) x (2) Depr.
1	5/15	75K	\$25,000
2	4/15	75K	20,000
3	3/15	75K	15,000
4	2/15	75K	10,000
5	1/15	75K	5,000

2-5 SL

	(1)	(2)	(3)	(4)	(5)
YR	EBDT	D	(1) - (2) EBT	(3) (.50) EAT	(2) + (4) CF
1	\$60,000	\$15,000	\$45,000	\$22,500	\$37,500
2	60,000	15,000	45,000	22,500	37,500
3	60,000	15,000	45,000	22,500	37,500
4	60,000	15,000	45,000	22,500	37,500
5	60,000	15,000	45,000	22,500	37,500

DDB

	(1)	(2)	(3)	(4)	(5)
YR	EBDT	D	(1) - (2) EBT	.50(3) EAT	(2) + (4) CF
1	\$60,000	\$30,000	\$30,000	\$15,000	\$45,000
2	60,000	18,000	42,000	21,000	39,000
3	60,000	10,800	49,200	24,600	35,400
4	60,000	6,480	53,520	26,760	33,240
5	60,000	9,720	50,280	25,140	34,860

SYD

	(1)	(2)	(3)	(4)	(5)
YR	EBDT	D	(1) - (2) EBT	.50(3) EAT	(2) + (4) CF
1	\$60,000	\$25,000	\$35,000	\$17,500	\$42,500
2	60,000	20,000	40,000	20,000	40,000
3	60,000	15,000	45,000	22,500	37,500
4	60,000	10,000	50,000	25,000	35,000
5	60,000	5,000	55,000	27,500	32,500

2-6 Either DDB or SYD since both are accelerated. DDB looks like it may be a little better since the first year CF is greater than for SYD.

<u>2-7</u>	EBIT	\$25,000
	-Interest	10,000
	EBT	15,000
	-T(.50)	7,500
	Retained Earnings	\$7,500

	EBIT	\$25,000
	-Interest	0
	EBT	\$25,000
	-T(.50)	12,500
	EAT	\$12,500
	- Common Dividends	10,000
	Retained Earnings	\$ 2,500

<u>2-8</u>	EBT		\$90,000
	-Taxes	[.22(\$25,000) + .48(\$90,000 - \$25,000)]	<u>36,700</u>
	EAT		<u>\$53,300</u>

$$\text{Average Tax Rate} = \frac{\$36,700}{\$90,000} = \underline{40.78\%}$$

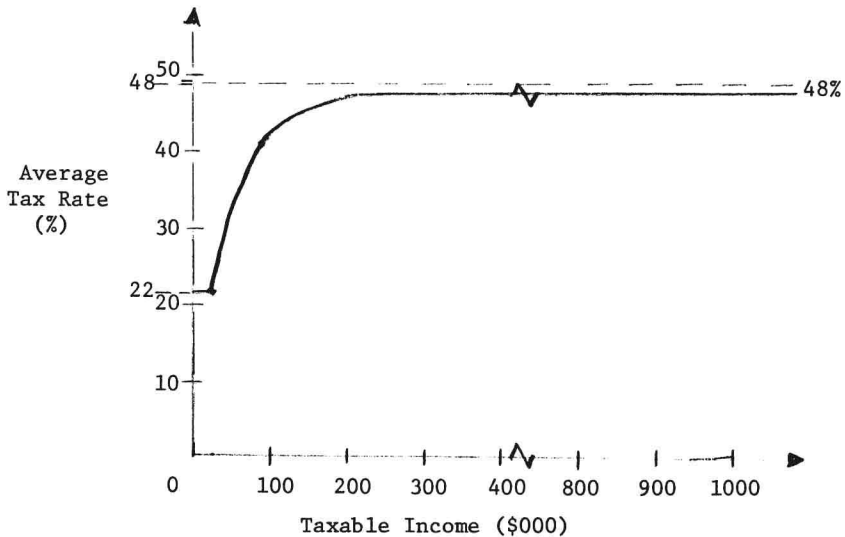
Marginal Tax Rate = 48% since EBT = \$25,000

<u>2-9</u>	a)	EBT	\$9000
		-Taxes	.22(\$9000)
		EAT	<u>1980</u>
			<u>\$7020</u>

$$\text{Average Tax Rate} = \frac{\$1980}{\$9000} = \underline{22\%}$$

	b)	EBT	\$900,000
		-Taxes	[.22(\$25,000) + .48(\$900,000 - \$25,000)]
		EAT	<u>425,500</u>
			<u>\$474,500</u>

$$\text{Average Tax Rate} = \frac{\$425,500}{\$900,000} = \underline{47.28\%}$$



2-10 Book Value

$$\$60,000 - 3\left(\frac{\$60,000}{6}\right) = \underline{\$30,000}$$

Sell for \$60K

Normal Gain	\$60K - 30K = \$30K
xNormal Tax Rate	.50
Tax Liability	<u>\$15,000</u>

2-11 Sold for \$40,000

Normal Gain	\$40,000 - \$30,000 = \$10,000
xNormal Tax Rate	.50
Tax Liability	<u>\$5,000</u>

Sold for \$80,000

Capital Gain \$80,000 - \$60,000 =	\$20,000
xCapital Gain Tax Rate	.30
Cap. Gains Tax	<u>\$6,000</u>

Normal Gain \$60K - 30K =	\$30K
xNormal Tax Rate	.50
Normal Gain Tax	<u>\$15,000</u>

Total Tax = \$6000 + 15,000 = \$21,000

2-12 A loss equalling the difference between the book value and sale price would be incurred. This loss can be applied against current, past (3 YRS) and future (5 YRS) operating earnings.

2-13 Book Value Machine = $\$500K - 4\left(\frac{500K}{20}\right) = \$500K - 100K$
= \$400K

Capital Gain \$500K - 500K =	\$50K
xCapital Gain Tax Rate	.30
Cap. Gains Tax	<u>\$15,000</u>
Normal Gain \$500K - 400K =	\$100K
+Operating Income	<u>190K</u>
Income Taxed at 50%	<u>\$290K</u>
xNormal Tax Rate	.50
Normal Tax Liability	<u>\$145K</u>
+Capital Gains Tax	<u>15K</u>
Total Tax Liability	<u>\$160,000</u>

2-14 a) No Capital Gain

Normal Gain \$500K - 400K =	\$100K
+Operating Income	<u>190K</u>
Income Taxed at 50%	<u>\$290K</u>
xNormal Tax Rate	.50
Total Tax Liability	<u>\$145,000</u>

b) No Capital Gain

No Normal Gain since Sold for Book Value

Operating Income	<u>\$190K</u>
Income Taxed at 50%	<u>95K</u>
Total Tax Liability	<u>\$95,000</u>

2-15 Book Value-Machine

$\$200K - 4 \text{ YRS } \left(\frac{200K}{10}\right) = \$200K - 80K$
= \$120,000

a) Machine Sold for \$70,000

Loss = \$120,000 - \$70,000 = \$50,000

Operating Earnings	\$240,000
Less: Loss on Sale of Mach.	<u>50,000</u>
Taxable Income 50%	\$190,000
*Normal Tax Rate	<u>.50</u>
Total Tax Liability	<u>\$95,000</u>

b) Machine Sold for \$180,000

Normal Gain = \$180,000 - \$120,000	\$ 60,000
Operating Earnings	<u>240,000</u>
Taxable Income @ 50%	\$300,000
*Normal Tax Rate	<u>.50</u>
Total Tax Liability	<u>\$150,000</u>

c) Machine Sold for \$120,000

No Taxes on Sale since B.V. = \$120,000

Operating Earnings	\$240,000
*Normal Tax Rate	<u>.50</u>
Total Tax Liability	<u>\$120,000</u>

d) Machine Sold for \$225,000

Capital Gain = \$225,000 - \$200,000 = \$25,000	
*Capital Gain Tax Rate	<u>.30</u>
Capital Gains Tax Liability	\$7,500

Normal Gain = 200K - 120K = \$80,000	
Operating Income	<u>240,000</u>
Taxable Income @ 50%	\$320,000
*Normal Tax Rate	<u>.50</u>
Tax Liability @ 50% Rate	\$160,000

Total Tax Liability	
Capital Gains	\$7,500
Normal Taxes	<u>160,000</u>
Total Tax Liability	<u>\$167,500</u>

2-16

a)

YR	Adjusted Earnings	Tax Refund
1968	0	\$50,000
1969	0	50,000
1970	0	<u>30,000</u>
	Total Tax Refund	<u>\$130,000</u>

Total Loss Applied

1968	\$100,000
1969	100,000
1970	<u>60,000</u>
	\$260,000

Amount Carried Forward

Total Loss	\$400,000
Loss Applied	<u>260,000</u>
Total Carryforward	<u>\$140,000</u>

b)

<u>Year</u>	<u>Item</u>	<u>Before Adjustment</u>	<u>After Adjustment</u>
1968	Earnings	\$100,000	\$0
	Taxes	50,000	0
1969	Earnings	100,000	0
	Taxes	50,000	0
1970	Earnings	60,000	0
	Taxes	30,000	0
1971	Earnings	(400,000)	0
	Taxes	0	0
1972	Earnings	40,000	0
	Taxes	20,000	0
1973	Earnings	100,000	0
	Taxes	50,000	0
1974	Earnings	150,000	150,000
	Taxes	75,000	75,000
1975	Earnings	120,000	120,000
	Taxes	60,000	60,000
1976	Earnings	100,000	100,000
	Taxes	50,000	50,000

c) A tax savings of \$130,000 from the 1968-1970 period along with tax savings of \$20,000 in 1972 and \$50,000 in 1973 represents a total tax savings (as a result of the \$400,000 loss) of \$200,000.

2-17 a)

<u>YR</u>	<u>Adjusted Earnings</u>	<u>Tax Refund</u>
1968	0	\$50,000
1969	0	50,000
1970	0	30,000
Total Tax Refund		<u>\$130,000</u>

b)

<u>Year</u>	<u>Item</u>	<u>Before Adjustment</u>	<u>After Adjustment</u>
1968	Earnings	\$100,000	\$0
	Taxes	50,000	0
1969	Earnings	100,000	0
	Taxes	50,000	0
1970	Earnings	60,000	0
	Taxes	30,000	0
1971	Earnings	(400,000)	0
	Taxes	0	0
1972	Earnings	40,000	0
	Taxes	20,000	0
1973	Earnings	100,000	0
	Taxes	50,000	0
1974	Earnings	150,000	0
	Taxes	75,000	0
1975	Earnings	120,000	0
	Taxes	60,000	0
1976	Earnings	100,000	0
	Taxes	50,000	0

c) A tax savings of \$130,000 from the 1968-1970 period along with tax savings of \$20,000 in 1972, \$50,000 in 1973, \$75,000 in 1974, \$60,000 in 1975 and \$50,000 in 1976 results in a total tax

savings (as a result of being able to write off \$770,000 of the \$800,000 loss) of \$385,000.

2-18 a) 1)

Year	Operating Income	Adjusted		Capital Gains Taxes
		Normal Taxes	Capital Gains	
1972	\$ 0	\$ 0		U
1973	50,000	25,000		N
1974	200,000	100,000		C
1975	0	0		H
1976	300,000	150,000		A
1977	400,000	200,000		N
1978	300,000	150,000		G
1979	500,000	250,000		E
1980	600,000	300,000		D

2) The firm received \$500,000 of normal tax relief but capital gains taxes were unaffected.

b) 1) Only change from initial table would be 1975 entry.

Year	Operating Income	Normal Taxes	Capital Gains	Capital Gains Taxes
1975	\$200,000	\$100,000	\$50,000	\$15,000

2) In this case both the operating income and capital gain will increase — not decrease — the firm's tax liability.

c) 1)

Year	Operating Income	Adjusted		Capital Gains Taxes
		Normal Taxes	Capital Gains	
1972	\$ 0	\$ 0	\$ 0	\$ 0
1973	0	0	0	0
1974	0	0	0	0
1975	0	0	0	0
1976	0	0	0	0
1977	0	0	0	0
1978	250,000	125,000	20,000	6,000
1979	500,000	250,000	90,000	27,000
1980	600,000	300,000	0	0

2) In this case the firm through writing off the \$2,000,000 operating loss and \$100,000 capital loss was able to reduce normal taxes by \$1,000,000 and capital gains taxes by \$30,000.

d) 1) In this case the firm for 1975 would have \$300,000 and normal taxes of \$150,000. The capital loss would reduce the 1973, 1974, 1978 and 1979 capital gains to zero, thereby resulting in no capital gains taxes over the 1972-1980 period. The full amount of the capital loss would not be recovered; but only \$210,000 of it will receive a tax benefit.

2) The firm's tax relief would be the \$63,000 reduction in capital gains taxes. No tax relief of normal taxes would result.

2-19 A (1) Only 1/3 of the purchase is eligible.
 $\$600,000 \times 1/3 \times 7\% = \underline{\$14,000}$

(2) All \$14,000 is applicable in 1976.

B (1) $\$50,000 \times 7\% = \$35,000$ (Only 50K eligible)

(2) All \$35,000 is applicable in 1976.

C (1) $\$1,000,000 \times 7\% = \underline{\$70,000}$

(2) Max. eligible = $\$25,000 + .50(\$75,000) = \underline{\$62,500}$

D (1) Life less than 3 years, therefore nothing eligible.

(2) Nothing applicable

E (1) $\$45,000 \times 2/3 \times 7\% = \underline{\$21,000}$

(2) The entire \$21,000 is applicable.

2-20 a) (1) B & C

B	\$35,000
C	70,000
	<u>\$105,000</u>

(2) Only the maximum \$62,500 can be applied in 1976.

b) (1) D & E

D	\$ 0
E	21,000
	<u>\$21,000</u>

(2) All \$21,000 is applicable in 1976.

2-21 Proprietorship

Earnings Before Deductions	\$80,000
Deductions	<u>15,000</u>
Taxable Income	<u>\$65,000</u>
Taxes $.40(\$65,000 \div \$60,000) = 43.3\%$	<u>\$28,145</u>

Corporation

Corporate Taxes

Earnings before Salaries and Taxes	\$80,000
Less: Salaries	<u>30,000</u>
Earnings Before Taxes	<u>\$50,000</u>
(1) Taxes $[(.22(\$25,000) + .48(\$50,000 - \$25,000))]$	\$17,500

Personal Taxes

Earnings Before Deductions	
Salary	\$30,000
Dividends	<u>10,000</u>
Total Income	<u>\$40,000</u>
Less: Deductions	<u>15,000</u>
Taxable Income	<u>\$25,000</u>
(2) Taxes $.40(\$25,000 \div \$60,000) = 16.7\%$	<u>\$4,175</u>
TOTAL TAXES AS CORP. [(1) + (2)]	<u>\$21,675</u>

The corporate form would result in a total tax liability of \$21,675 while the proprietorship results in \$28,145 of taxes. Based upon the tax liability minimization criterion, the *corporate* form would be preferred.

CHAPTER 3

THE ANALYSIS OF FINANCIAL STATEMENTS

PEDAGOGICAL OBJECTIVES

This chapter should provide the student with an understanding of the various ratios available for analyzing a firm's financial statements. The student is familiarized with both the key users and methods of using financial ratios to evaluate a firm's financial position. The student is presented with the methods of calculating and interpreting measures of liquidity and activity, debt, profitability, and coverage.

ANSWERS TO TEXT QUESTIONS

3-1 Current and prospective shareholders place primary emphasis on measures of profitability; while, creditors are more concerned with measures of debt and coverage. Stockholders are therefore most interested in income statement measures and creditors are most concerned with balance sheet measures. Management is concerned with all ratio measures since they recognize that stockholders and creditors must see good ratios in order to keep the stock price up and raise new funds. Therefore, favorable ratios are needed in order to raise funds at reasonable rates.

3-2 *Cross-sectional* comparisons are made by comparing similar ratios for firms within the same industry or to an industry average. *Time series* comparisons are made by comparing similar ratios for a firm measured at various points in time. Time series comparisons are most common for internal analysis since they allow the firm to evaluate the trends in certain ratios.

3-3 Because many businesses are seasonal and, by comparing the same ratio at different points within a year, explainable differences may show up since the firm is in a different phase of its operating cycle. This problem can be overcome by always comparing ratios measured at the same point within the firm's operating cycle for the years of concern.

3-4 Measures of liquidity or activity indicate how well the firm can meet its current obligations; measures of debt somehow indicate how much of other people's money the firm is using; measures of profitability measure a firm's returns with respect to either sales, assets, or equity; and measures of coverage measure the firm's ability to meet certain fixed charges. Prospective and existing creditors are most concerned with debt and coverage measures.

3-5 The best measure of overall liquidity would be either the current ratio or the acid-test ratio since these ratios provide a relative comparison of liquidity; while, net working capital merely provides a dollar figure representing liquidity. The acid-test

ratio would be preferred over the current ratio when a firm has illiquid inventories; otherwise the current ratio would probably be best.

3-6 If a firm had illiquid inventories and accounts receivable, it would be best to measure liquidity by subtracting inventory and accounts receivable from the current assets and dividing the difference by current liabilities. This ratio is similar to the acid test ratio except for the fact that accounts receivable are eliminated in the numerator.

3-7 Averages increase accuracy by leveling out any seasonality and thereby providing a stable measure that reflects the firm's average performance — instead of seasonal. In other words, the use of averages irons out the seasonal fluctuation in various values allowing the analyst to get a general feel for how the firm is doing.

3-8 Given the turnover of either accounts receivable or inventory, the average age can be found by dividing the turnover into the number of days in the year. The turnovers and average ages of these accounts are therefore inversely related.

3-9 Since the average age of accounts receivable represents the average amount of time it takes a firm to collect its bills, it can be compared to the credit terms it extends in order to determine how efficiently the firm manages its accounts receivable. If the average age of accounts receivable is greater than the terms extended, a problem may exist. The average age of accounts payable can be compared to the credit terms extended the firm in order to determine how well it pays its bills.

3-10 Aging is a process in which the firm's accounts — receivable or payable — are broken into groups on the basis of when they were initially incurred, and then the amount from each period is expressed as a percent of the total accounts on the firm's books. This process allows the firm to evaluate accounts not solely on the basis of an average, but increases information by presenting the time-pattern of outstanding accounts. The analyst can therefore see when a problem in the management of accounts developed and can therefore more easily isolate the cause.

3-11 The debt ratio differs from the debt-equity ratio in that it contains both current liabilities and long-term debt in the numerator; while the debt-equity ratio includes only long-term debt. The debt-to-total-capitalization ratio differs from the debt-equity ratio in that it contains total capitalization, which is long-term debt plus equity, in its denominator; while, the debt-equity ratio contains only equity in the denominator. High values of any of these ratios indicate larger degrees of debt and are therefore considered risky by lenders. The higher these ratios the more risky the firm.

3-12 Firms that have high gross profit margins and low net profit margins have high levels of expenses. In this case the high expenses more than compensate for the low cost of goods sold (i.e., high gross profit margin) thereby resulting in a low net profit margin.

3-13 The ROI indicates how well the firm has used its asset investment to generate profits. The Du Pont formula can be used to