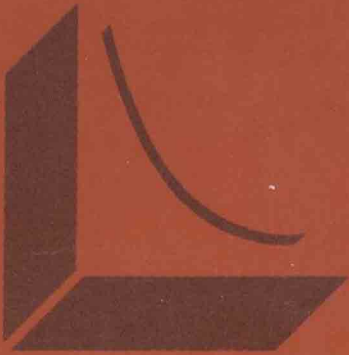# Study Guide
by William A. Long and K. K. Seo
to accompany

Managerial Economics

Text, Problems, and Short Cases

K. K. Seo

Sixth Edition

Study Guide

to accompany

Managerial Economics
Text, Problems, and Short Cases

William A. Long

K. K. Seo

1984
Sixth Edition

Richard D. Irwin, Inc.
Homewood, Illinois

To Our Wives

Virginia and Katherine

For Their Patience and Understanding

INTRODUCTION

This study guide has been designed for just one purpose—*to help you learn about managerial economics*! In preparing the *Study Guide* we have tried out the questions and problems on both graduate and undergraduate students over the past two semesters. Their general reaction was that they found the material to be very helpful. Their comments and suggestions have been incorporated into this final product. If you use it properly:

1. It will help you to learn faster with better comprehension and retention of the assigned material.
2. It will help you to prepare for examinations, since numerous questions the instructor may throw at you are covered by this material.
3. It will help you learn how to apply the analytical tools and economic concepts to real world situations.

How to Use the Study Guide.

The Study Guide consists of two parts:

1. *Part I—Study Aids.* This part of the Study Guide consists of four sections for each chapter.

    a. *What You Should Learn from this Chapter.* This section contains just what the name implies. It outlines the chapter by telling you what main points you should be learning.
    b. *Concepts and Terms You Must Understand.* This section is simply a listing of the key concepts and terms that appear in the chapter. Some of them may also have appeared in previous chapters, and this enables you to grasp the continuity from one chapter to the next throughout the book. If there are any terms in this list that you do not fully understand, then you had better go back and read the text again.
    c. *Self-Test.* This section contains true-false and multiple-choice questions that blanket the chapter, and problems similar to end-of-chapter problems in the text. The answers to the questions are all in the text, although some may require interpretation of the text. The problems can be solved by the methods explained in the text.

        For the student, this section is extremely valuable, for it is by answering such questions and solving such problems that real understanding of the textual material is gained. The good student, therefore, will look at the answers in Section 4 only as a last resort. A good student will find the answer by searching for it in the text. In so doing he or she will not only gain a better understanding of the material, but will also become well-prepared for any examination the instructor might give.

d. *Answers to Self-Test.* After students are satisfied with their answers to the self-test, they should check the answers against this section. If your answer is wrong, go back and read the text again.

2. *Part II—Homework.* This part of the study guide consists of questions and problems that are parallel to the Self-Test in Part I, but no answers are included. Your instructor, who has the answers, may assign the homework for you to complete and hand in, or may elect to discuss the homework in class. Either way, you should do the homework assignment by looking up the answers in the text. If you are not sure of your answers, consult with your instructor.

3. *Preparation for Examination.* If you have been faithfully using the Study Guide in the manner outlined above, you will need less special preparation for an examination on the material in the text.

Acknowledgments

Contents

HOMEWORK ASSIGNMENTS

Introduction to Managerial Economics

I. What You Should Learn from this Chapter

1. Definitions of managerial economics. The relationship between traditional economic theory and managerial economics. The firm's role in society.

2. The use of prescriptive and descriptive models and the application of mathematics and econometrics.

3. Theories of the firm:

    a. Profit-maximization model: The objective is to increase owners' wealth; the pursuit of profit is limited by legal, moral, and social constraints.

    b. Sales-maximization model: The objective is to maximize sales subject to some minimum satisfactory level of profit; it is supported by casual observations, but not by empirical research.

    c. Growth-maximization model: It assumes growth is desired primarily to increase profitability; it maximizes profits in the long run.

    d. Present value model: The objective is to maximize owners' wealth as measured by the present value of future cash inflows; this model lacks descriptive realism.

    e. Managerial utility model: It postulates a conflict between management and owners in modern corporations; it is not supported by empirical evidence.

4. Reasons for using a profit-maximization model; survival and profits; managerial compensation and profits; exploration and prediction of firm's behavior; cost analysis; long-range versus short-range profit planning.

II. Concepts and Terms You Must Understand

Capitalized value	Managerial-utility model
Constrained maximum sales	Mathematical economics
Descriptive models	Microeconomics
Econometrics	Normative models
Economic methodology	Optimizing models
Economic theory	Prescriptive models

II. (Continued)

Growth-maximization model
Liquidity
Macroeconomics
Management slack
Managerial economics

Present value
Present-value model
Profit-maximization model
Sales-maximization model
Theory of the firm

III. Self-Test

A. *True-False Questions*

T　F　1. Managerial economics is only superficially related to traditional economic theory and is entirely separate from other business education disciplines.

T　F　2. If a descriptive model is to be useful, it must accurately describe economic behavior as it exists in real life.

T　F　3. The purpose of a prescriptive model is to prescribe a set of decision rules for optimizing a stated objective within specified constraints.

T　F　4. Models that are developed to explain economic relationships may be tested by the statistical techniques of econometrics.

T　F　5. Although profit is an important internal consideration for a business firm, its relationship with society is based upon other goals and objectives.

T　F　6. The actual behavior of business firms is best explained and predicted by the profit-maximization model.

T　F　7. The sales-maximization model hypothesized by Professor Baumol holds that in the long run, maximization of sales is more common behavior than maximization of profits.

T　F　8. Long-run interests and decisions under the growth-maximization model are the same as those under the sales-maximization or profit-maximization models.

T　F　9. The present-value model provides for the incorporation of risk into the calculation of present value.

T　F　10. The managerial-utility model is based on the assumption that corporate managers pursue their own interests rather than the firm's interests.

2

B. *Multiple Choice*

11. Managerial economics is concerned with the optimal allocation of scarce resources among competing activities. This involves:

    a. Maximizing output for a given level of costs.
    b. Minimizing costs for a given level of output.
    c. Matching a given level of costs with a given level of output.
    d. All of the above.
    e. a and b, but not c.

12. Managerial economics uses both descriptive and prescriptive models.

    a. Descriptive models provide an ideal against which the actual behavior of business firms in real life may be compared and criticized.
    b. Above everything else, the descriptive model must be accurate in describing real-life behavior of for-profit and nonprofit organizations alike.
    c. A prescriptive model enables the decision maker to reach a stated objective in the most efficient way.
    d. All of the above are true.

13. The role of the firm in society is:

    a. To marshal the resources of capital and labor and allocate these scarce resources to competing activities in an optimal manner.
    b. To direct transformation processes that convert raw materials and labor into useful output.
    c. To distribute its products to those who need or want them.
    d. All of the above.

14. The profit-maximization model:

    a. Has been completely validated by empirical research.
    b. Is subject to legal, moral, and social constraints that limit pursuit of profit.
    c. Places limits upon the amount of profit that a firm can earn.
    d. All of the above.

15. The sales-maximization model:

    a. Places no limits on the level of sales to be achieved.
    b. Is supported by intuitively appealing examples and impressionistic evidence.
    c. Contradicts the profit-maximization model in both the short run and the long run.
    d. All of the above.

16. The growth-maximization model:

    a.   Is based on the concept that growth and growth potential are the yardsticks used to measure corporate success.

    b.   Recognizes that maximizing growth may inhibit the maximization of profit.

    c.   Shows that short-run and long-run interests of management are virtually identical.

    d.   All of the above.

17. The present-value model:

    a.   Measures owners' wealth as the present value of a future stream of profits subject to a given level of risk.

    b.   Can give important insights into the probable behavior of firms.

    c.   Is unrealistic, because it requires accurate prediction of the magnitude and timing of a future stream of profits.

    d.   All of the above.

18. The managerial-utility model:

    a.   Recognizes the community of interest between managers and stockholders of a publicly held corporation.

    b.   Postulates that managers have a different set of motives, needs, and desires than owners.

    c.   Has been supported by the weight of empirical evidence.

    d.   All of the above.

19. Critics of the profit-maximization model argue that:

    a.   Profit maximization causes undue risks which prudent managers want to avoid.

    b.   Managers in the real world do not have sufficient information to maximize profits.

    c.   A modern firm has many other goals.

    d.   All of the above.

20. Proponents of the profit-maximization model argue that:

    a.   None of the proposed models are supported by empirical evidence.

    b.   Deeds count for more than words, and managers actually behave as if they are attempting to maximize profits.

    c.   In the face of vigorous competition, the firm that does not attempt to maximize profits will go under.

    d.   All of the above.

C. *Problems*

21. Dominick Display, Inc. is an advertising agency in the Southwest. The capitalized value of Dominick's common stock is $57.00 per share, and current earnings are $4.50 per share. Dominick has been offered the Southwest Airlines account, which may increase earnings by about $1.25 per share. However, Dominick would have to borrow additional working capital in order to handle the account. Further, the additional earnings would come as bonuses for a successful campaign, so they are by no means certain. After evaluating the risk and other factors, Dominick's management concludes that in order to take the new account, it must be assured of a return on investment of 19 percent.

   a. Find the present rate of return on investment.
   b. Should Dominick Display accept the Southwest Airlines account?

22. You have accumulated a sizeable nest egg in a savings account which is currently paying 10.5 percent interest. A wealthy friend has invited you to join him as a partner in a new enterprise. However, the new enterprise will not earn anything for four years, after which it will yield $2,200 for every $1,200 invested. Your friend is willing to personally guarantee that return by giving you his promissory note, and you know he is wealthy enough to pay it if the enterprise goes sour. Should you invest?

23. A firm has three proposals under consideration, each of which requires an initial investment of $10,000. Expected returns are:

Year	Proposal 1	Proposal 2	Proposal 3
1	$ 3,000	$ 5,000	-0-
2	3,000	5,000	$ 3,000
3	3,000	3,000	6,000
4	3,000	2,000	6,000
5	3,000	-0-	-0-
Total	$15,000	$15,000	$15,000

   a. What is the present value of each proposal at discount rates of 12 percent, 15 percent, and 18 percent?
   b. What is the effect of timing on the cash flows?

1.	F	6.	T	11.	e	16.	a
2.	F	7.	F	12.	c	17.	d
3.	T	8.	T	13.	d	18.	b
4.	T	9.	T	14.	b	19.	d
5.	F	10.	T	15.	b	20.	d

21.　a.　$V = \dfrac{E}{r}$

$57 = \$4.50/r$

$57r = 4.50$

$r = .0789$

$$V = \frac{4.50 + 1.25}{.19} = \frac{5.75}{.19} = \$30.26$$

　　b.　The capitalized value of Dominick Display common stock would decrease from $57 to $30.26. It should not accept the Southwest Airlines account.

22.　Since your required rate of return is 10.5 percent:

$$V = \frac{\$2,200}{(1.105)^4} = \$1,475.62$$

If you consider accepting your friends' note as no more risky than your savings account, you should accept his proposal.

23.　a.　*Proposal 1:* $PV = \$3,000 \left[\dfrac{1-(1+r)^{-5}}{r}\right] - \$10,000$

At 12%: $PV = \$3,000(3.6048)-\$10,000 = \$10,814-\$10,000 = \$814$

15%: $PV = \$3,000(3.3522)-\$10,000 = \$10,056-\$10,000 = \$56$

18%: $PV = \$3,000(3.1272)-\$10,000 = \$9,382-\$10,000 = -\$618$

Proposal 2:

$$PV = \frac{\$5,000}{1+r} + \frac{\$5,000}{(1+r)^2} + \frac{\$3,000}{(1+r)^3} + \frac{\$2,000}{(1+r)^4} - \$10,000$$

At 12%: $PV = \$11,857-\$10,000 = \$1,857$

15%: $PV = \$11,245-\$10,000 = \$1,245$

18%: $PV = \$10,686-\$10,000 = \$686$

Proposal 3:

$$PV = \frac{\$3,000}{(1+r)^2} + \frac{\$6,000}{(1+r)^3} + \frac{\$6,000}{(1+r)^4} - \$10,000$$

At 12%: PV = $10,475−$10,000 = $ 475
   15%: PV = $ 9,644−$10,000 = −$356
   18%: PV = $ 8,901−$10,000 = −$1,099

b.   The longer the cash return is postponed, the less it is worth. Thus Proposal 2, which receives its largest cash inflows in the early years is worth more than either Proposal 1 or Proposal 2. Proposal 3, which receives larger annual sums than either Proposal 1 or Proposal 2, but gets the larger sums in the later years, is worth least.

Decision Analysis

I. What You Should Learn from this Chapter

1. What is the general procedure for effective decision making?

2. What are the decision making environments that managers must face?

    a. The concept of certainty (definition)
    b. The concept of risk (definition)
    c. Methods of estimating risk
        (1) A priori method
        (2) A posteriori method
            (a) Frequency distribution
            (b) Probability distribution
    d. The concept of uncertainty
        (1) Degree of uncertainty
        (2) Conversion of uncertainty into risk

3. The use of the payoff matrix as a decision model
    a. The definition of strategies and states of nature
    b. The definition of payoffs
    c. The concept of expected value

4. Utility, risk aversion and risk premiums

    a. Conversion of dollar values to utility values
    b. Diminishing marginal utility
    c. The concept of risk premiums
        (1) Business risk
        (2) Financial risk

5. Risk adjustment:

    a. Risk-adjusted discount rates
    b. How the certainty-equivalent approach incorporates the decision maker's attitude toward risk.

II. Key Concepts or Terms to Remember

A Posteriori
A priori
Bayesian Postulate
Bayesian Probability
Certainty, State of
Certainty-Equivalent Coefficient
Diminishing Marginal Utility
Equivalent Certain Sum
Expected Risky Sum
Expected Value
Frequency Distribution
Marginal Utility

Payoff
Payoff Matrix
Probability Distribution
Risk, State of
Risk-Adjusted Discount Rate
Risk Adjustment
Risk Premium
State of Nature
Strategy
Subjective Probability
Uncertainty, State of
Utility, Concept of

III. Self-Test

A. *True-False Questions*

T   F   1. Firms never really operate in a condition of certainty be-
cause it isn't actually possible to achieve that degree of
knowledge.

T   F   2. Risk may be regarded as the quantitative measurement of
an outcome when the probability of the outcomes can be
predicted objectively.

T   F   3. "A priori" means "by empirical measurement."

T   F   4. A decision-making approach that incorporates subjective
probabilities is called the Bayesian approach.

T   F   5. A frequency distribution can be directly converted to a
probability distribution if we are willing to assume that the
past will be precisely repeated in the future.

T   F   6. A table listing the rewards or payoffs resulting from var-
ious strategies under various states of nature is called a
"payoff matrix" or a "decision matrix."

T   F   7. For events which are equally probable, the expected
value is equal to the average of the observations.

T   F   8. It is necessary to convert dollar payoffs to utility payoffs
only if the decision maker is a risk taker.

T   F   9. Although the cardinal measurement of utility is concep-
tually possible, in reality it is impossible because no one
has been able to define a standard util.

10