MANAGERIAL ACCOUNTING

Moore & Jaedicke

Fifth Edition

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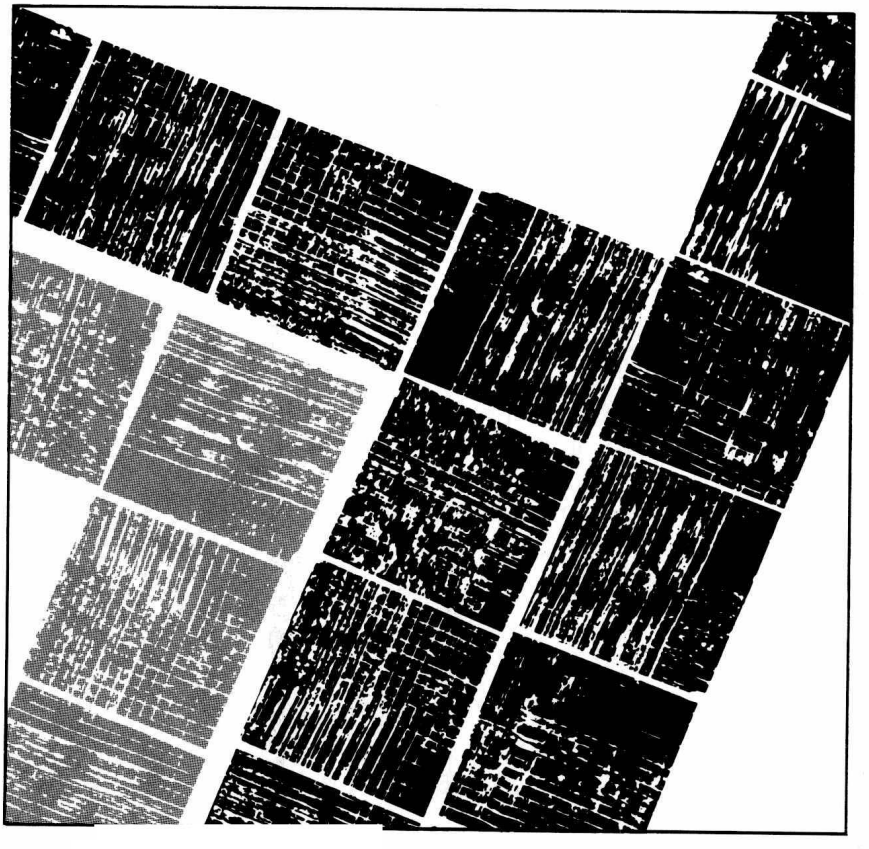

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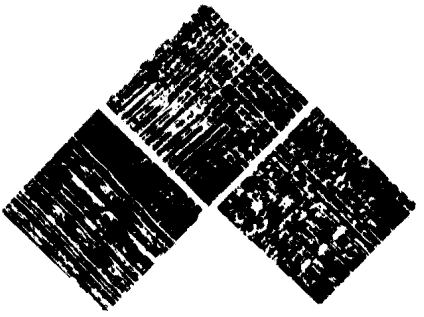

PREFACE

The objective of this edition of *Managerial Accounting*, as it was in the earlier editions, is to explain how accounting data can be interpreted and applied by management in planning and controlling business activities. The major purpose of this book is to show how accounting can help to solve the problems that confront those who are directly responsible for the management of an enterprise. Attention is also given to the use of accounting data by investors and potential investors whenever appropriate.

In this edition, the basic structure has been changed to give the students a foundation in the fundamentals of managerial accounting at the beginning of the course. Many textbooks are now available that deal with the fundamentals of financial accounting in one semester. Hence, the authors believe that preliminary chapters, such as Chapters 1, 2, and 3 of the fourth edition, that deal with problems more peculiar to financial accounting are no longer necessary. These chapters have been eliminated from this edition. Material has been drawn from these chapters, as needed, and combined with a review for the students given in Appendix A at the end of the book.

The chapters have been rearranged and revised extensively in an effort to concentrate more completely on the problems of managerial accounting. The book has two parts: Part I, Planning and Control, (Chapters 1 through 7) and Part II, Analysis and Decision Making, (Chapters 8 through 15).

The budget concept is introduced in the first chapter in a simple form to show the student that a budget plan comes first and permeates all aspects of the managerial function. In Chapter 2, attention is directed to costs and how they can be used for planning and control. Chapter 3 deals with how costs are estimated and used for control. The chapters that follow discuss profit planning, product costs, and standard costs to complete Part I.

In Part II, the more specialized managerial decisions are discussed along with topics such as price level, analysis of financial statements, and net working capital and cash flows that are important to both financial and managerial accounting. The overall managerial theme is brought together in the final chapter on the master budget plan.

At the end of each chapter, as in earlier editions, are questions, exercises, and problems. Present value tables are given at the back of the book for use in working some of the problems for Chapter 10. The questions may be used as a basis for classroom discussion, or they may be used by the student to review the chapter. Essential points are included in the questions in the order in which they are presented in the chapters. The exercises are simple problem situations to help the student apply the concepts discussed in the chapters. The problems are more rigorous than the exercises and are usually listed in order of difficulty or according to the amount of time required for solutions. All exercises and problems retained from earlier editions have been revised. In this edition, exercises and problems have been added, with special attention being given to shorter exercises and problems that should provide more flexibility and a variety of situations for assignment.

The book is intended for a one-semester or a one-quarter course for students who expect to use accounting data in their future occupations. We believe that accounting majors will benefit from this material as much as those students who are studying other fields of business and economics but who are not going to be professional accountants. After all, professional accountants must be as familiar with the use of data as they are with its collection and presentation. It is important for professional accountants to know the *why* as well as the *how*. Students should use this book after having had a one-semester or two-quarter course in the introductory principles of accounting. Students who need a review of introductory accounting are referred to Appendixes A and B, which deal concisely with the accounting cycle. Also, students who are not familiar with the present value concept should study Appendix C before Chapter 10 is covered.

The chapters may be assigned in sequence, or they may be assigned in a different order, depending upon the background of the class and the objectives of the course. With students who need a review of basic accounting, it may be helpful to start with Appendixes A and B. Some instructors may prefer to start with Chapter 2 and take up budgets at the end of the course by combining the material from

Chapters 1 and 15. Inasmuch as the price-level problem has recently received much attention, some instructors may want to give it emphasis by starting with Chapter 12 and continuing with statement analysis in Chapter 13 and the flow of net working capital and cash in Chapter 14 before going to Chapter 1.

The authors acknowledge with gratitude the many helpful comments received from instructors and students who have used the fourth edition. Particular recognition is given for the help received from Professors F. B. Flores, University of Texas at El Paso; Robert Graham, Baldwin-Wallace; and James Wallis, Wayne State University.

In addition, we are grateful to the Literary Executor of the late Sir Ronald A. Fisher, F.R.S., to Dr. Frank Yates, F.R.S., and to Longman Group Ltd., London, for permission to reprint a segment of Table III from their book *Statistical Tables for Biological, Agricultural and Medical Research* (6th edition, 1974).

We are indebted for the use of materials included in the publications of the American Institute of Certified Public Accountants, the Financial Accounting Standards Board, and the National Association of Accountants.

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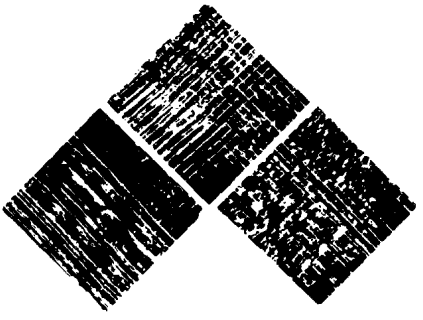

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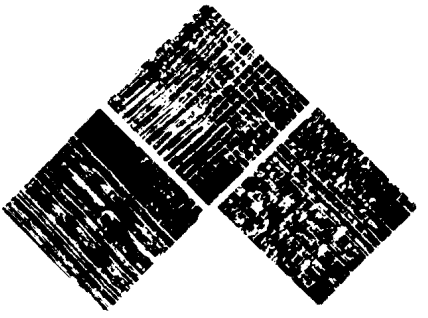

INTRODUCTION
Managerial Accounting: Definition and Framework

Managerial accounting or *management accounting* is a segment of accounting that deals specifically with how accounting data and other financial information can be used in the management of business, governmental, or not-for-profit entities. Because managerial accounting is designed to assist internal management, it is relatively free from the restrictions imposed by regulatory bodies that prescribe how accounting information should be presented to the public.

Although managerial accounting is to a large extent free from restrictions, it does rely upon broad general concepts and certain applications that are most useful to management. Specific applications in given situations, however, depend upon the needs and preferences of the individual managers who are to receive the information.

SCOPE OF MANAGERIAL ACCOUNTING

Often it is thought that managerial accounting is a variation of cost accounting and that it deals exclusively with costs and prices. Cost and price data are very important, but management cannot afford to limit itself to this area.

Management wants to consider the total situation. For example, if management decides to finance business growth with long-term debt, it may question: What effect will this decision have upon the earnings

per share of stock? Will debt in the equity structure become too large in relation to the stockholders' equity? In still other situations, management may want to consider how it can guard against losses in purchasing power from rising prices or how it can plan a flow of cash receipts from operations that will be sufficient for the payment of current obligations.

Managerial accounting makes use of information that is drawn from financial accounting and may extend beyond the boundaries of accounting to draw upon economics, finance, statistics, operations research, or other disciplines as necessary.

THE OBJECTIVE OF MANAGEMENT

If managerial accounting is expected to serve management, it is necessary to consider the goals of management. It may seem that management is striving only to increase business volume or to maximize profit, but this may not be so.

Many enterprises do not even attempt to produce profit. A governmental agency may be primarily concerned with giving a needed service to the public. Individuals may also form an association for the purpose of promoting some common idea. The success of the enterprise is measured by the realization of an established common goal rather than in economic terms. However, the economic realities cannot be ignored. In any type of enterprise, management must use its resources in such a way that the desired goals will be attained in an efficient manner.

A *governmental unit*, for example, may make use of the profit concept in measuring whether or not resources have been used effectively and efficiently. Plans may be made with profit goals included and with activity conducted accordingly. Performance may then be rated by comparing the results with the resources and effort dedicated to the achievement of the objectives.

A *commercial enterprise*, of course, is normally interested in profit; management is judged according to its ability to earn profit from the resources entrusted to its care.

Modern management recognizes that business enterprise is also responsible to many persons who belong to diverse groups. For example, the general public expects to receive dependable products at a fair cost, and the employees depend upon the business for a means of livelihood. In addition, the business is expected to be a good neighbor in the community in which it operates. Various groups must be given recognition along with the owners and the creditors who have invested tangible resources in the enterprise. It is now generally understood that the interests of each group are best served by the harmonious reconciliation of all interests. Hence, the objective of maximizing the rate of profit must be accomplished within socially and legally accepted bounds.

THE METHOD OF MANAGEMENT

Management accomplishes its objectives by working with people. The efforts of many individuals are combined in an organization. The top-level management, as it is called, assumes responsibility for overall planning and policy formation. Decisions that affect the business as a whole are made in a corporate form of organization by the president, the vice-presidents, and other officers. The work of the organization is divided so that each officer has authority to act in a given area of activity. For example, one vice-president may be in charge of production, while another is in charge of sales.

Managers at the top level are unable to make all of the decisions. They are assisted by lower levels of management who make specific decisions in prescribed areas. A vice-president in charge of production may delegate the authority for plant operation to superintendents, each of whom assumes responsibility for the operation of a given plant. Part of the plant superintendent's authority may be delegated to section superintendents, who in turn depend upon departmental supervisors who are responsible for operations at the department level. Company policy is thus established and carried out with a hierarchy of managerial personnel extending from the president to the department supervisors. This division of work throughout the organization applies not only to production but to other functional areas as well.

PLANNING AND CONTROL DECISIONS

The decisions of management may be classified as planning and control decisions. In any type of enterprise, plans must be made to guide future operations. An enterprise must have its course charted and must be given direction in light of future expectations. A coordinated and detailed plan for the future is a *budget*. The various interrelated budgets of the operation are brought together and synchronized in a master or comprehensive budget. Included in the budget but extending beyond the current fiscal period are plans for the selection of new product lines, investments in new facilities or equipment, and ways of financing new investments.

Plans, of course, are not enough. There must be a follow-through. Steps must be taken to put the plans into operation and to see that they are being carried out as intended. Actual operations have to be directed and controlled if the plans are to be realized. Sometimes as operations progress it becomes necessary to revise the plans and to direct activities along a different course from that originally plotted. The decisions that pertain to the direction of actual business activity may be looked upon as decisions of control.

Both planning and control decisions are made at all levels of management. Top-level management, for example, may investigate new in-

vestment opportunities and may plan for the future by accepting or rejecting certain proposals. When a course of action has been decided upon, the results should be measured and compared with the original plan. Operations should be directed so that unfavorable tendencies are eliminated or at least minimized. Whenever necessary, the initial plan should be altered to fit a change in circumstances.

Supervisors may likewise make planning and control decisions within their own jurisdictions. It may be up to them to plan the work within their departments, to assign people to different tasks, and to guide operations in accordance with established plans.

A firm does not have complete freedom of choice in making decisions. Limitations are imposed by conditions in the marketplace and by other outside influences. A company may find it necessary to adjust to the demand for its products, the relative scarcity of productive factors, their cost, and other conditions that prevail. Basic managerial decisions of a business enterprise have often been classified under three general headings as decisions with respect to:

1. The methods of operation.
2. The size or scale of the operation and prices to be charged.
3. The combination of products or services to be offered.

Under the methods of operation, management considers the services to be rendered or products to be sold. In operating a motel, for example, will a restaurant be included and will limousine service to the airport be furnished? Should products be manufactured or should they be purchased in completed form for resale?

Management must also consider the size of the operation. How much service will be rendered or what quantity of products will be available for sale? In order to handle a given volume of business, the firm must have adequate resources. These resources must be in balance so that there will be sufficient cash to pay creditors, an adequate quantity of goods to deliver to customers, and satisfactory facilities to support the operation. Prices and costs are examined in relation to the volume of business conducted, and decisions are made that tend to maximize the rate of return on the resources invested.

If there is more than one product line or service to be considered, management has to select the combination that appears to be the most profitable. Prices and costs are identifiable with each product or service. In a combination situation, it may be better to concentrate attention on the product or service that yields the greatest profit. Further analysis may show, however, that profit can be improved by selling a combination that does not necessarily maximize the sale of the most profitable item.

These decisional classifications are mentioned for the sake of convenience. In practice, one type of decision cannot be isolated from another; they tend to blend together. A combination decision, for example, may very well influence methods of operation and the size of the operation.

CLASSIFICATION OF DECISIONS BY FUNCTION AND TIME ELEMENT

Managerial decisions may sometimes be classified under given functions such as sales, production, and finance. A decision may be spoken of as a sales decision or as a production decision. A decision to concentrate sales effort in a given area would be primarily a sales decision, whereas a decision to use a certain method in manufacturing would be primarily a production decision. The breakdown of decisions according to function and activity is possible in many cases.

However, there is some risk in the classification of decisions by function. Not all decisions can be classified. In some instances, decisions that appear to fall within a functional area will have a widespread effect upon the entire operation. It would seem, for example, that the decision to manufacture a part instead of buying it would be a production decision. Yet, the effect may extend beyond the production area. By producing parts, the company may be competing with its former suppliers. This in turn may have an effect upon sales, particularly if excess parts produced are sold on the market. It is also possible that the costs of administering the business will increase if parts are manufactured. Before going ahead with its plans, management should make certain that it has considered the total effect of these plans upon the enterprise as a unit.

It is also possible to classify decisions according to time element. Certain decisions have an effect for only a relatively short period of time, while others are so long-range as to have an impact extending many years into the future. A budget for the coming year would be a short-range plan. Likewise, an estimate of expected cash collections during the next three months would be a plan of short duration. On the other hand, a plan to construct a new plant or to lease properties would probably commit the enterprise to a course of action extending several years into the future. Decisions having an influence over a relatively long period of time are spoken of as long-range decisions.

THE CONTRIBUTION OF THE ACCOUNTANT

Management depends upon information in making decisions. Much of this information is provided within the framework of the managerial organization itself. Policies and instructions are transmitted to subordinates, who in return report to their superiors showing how well they have discharged the tasks assigned to them. Without these channels of communication, effective business management would be impossible.

The accountant is expected to furnish financial information. It is also the accountant's responsibility to maintain the financial records and to prepare the statements that present the financial position of the

business, the changes in the financial position, and the results of operations. In addition, the accountant combines financial data in various ways in the preparation of reports that serve as a guide to management.

The accountant is not only a service arm to management but is a part of management. The controller of a company, for example, is responsible for the management of the accounting function, thus selecting ways to process accounting data and methods of presentation. In the accounting area itself, the principles of management are applied. What combination and quantity of reports should be prepared, how should they be prepared, and what is the best method of collecting data? By the nature of the work, the accountant is drawn into the management of the business and often assists in the decision-making process.

PLANNING

Planning through the use of budgets has already been pointed out as a highly significant management function. The accountant helps to bring together budget estimates and the results of various decisions to form a comprehensive plan for the future. Throughout this text, attention is given to the decision-making process. As mentioned earlier, management may question: Should the firm continue processing a product to its finished form or sell it partially processed, and should the firm make or buy the parts used in production? These individual decisions have ramifications throughout the firm and must be considered in the preparation of a comprehensive budget for the year. After all separate decisions have been made, the results can be brought together to form a coordinated budget of total sales revenue, total cost of operation, and a projection of the financial position.

Accounting data can be used selectively to fit special situations. Learning to use accounting data properly is very important in the process of mastering managerial accounting. Accounting data are like tools, and one must carefully select the appropriate accounting information to fit the specified requirement.

A plant manager, for example, may plan to introduce a new product line that can be sold for $15 per unit and has collected the following cost information:

Cost for each unit manufactured:

Materials	$ 5
Labor	3
Other costs	2
Increased cost per unit	$10

Plant facilities must be used; and the cost of rent, heat, light, insurance, and taxes assigned to this portion of the plant each year has been estimated at $6,000. To simplify the illustration, assume that there are no selling and administrative expenses for this product line.

The plant manager believes that 6,000 units of product can normally be manufactured and sold each year. On this basis the full cost to manufacture the product must be determined. The *full cost* is the total cost to produce the product including the apportioned cost of facilities used.

Full production cost:

	TOTAL COST (6,000 UNITS)	UNIT COST
Materials (6,000 × $5)	$30,000	$ 5
Labor (6,000 × $3)	18,000	3
Other costs (6,000 × $2)	12,000	2
Plant facility cost (unit cost: $6,000 ÷ 6,000)	6,000	1
Total	$66,000	$11

The total profit, after income tax at a 40 percent tax rate, has been estimated at $14,400.

Estimated total revenue (6,000 × $15)	$90,000
Estimated total cost (6,000 × $11)	66,000
Profit estimated before income tax	$24,000
Income tax (40%)	9,600
Profit estimated after income tax	$14,400

This estimate is good only if 6,000 units are manufactured and sold.

By using full cost, however, the manager knows that the product line can bear its share of the cost of facilities when 6,000 units are made and sold. The profit in relation to the investment made can also be evaluated. At this point, however, it is not known how much each unit sold contributes to profit nor is there a basis for comparing this line of product with a competing line that can be produced with the same facilities.

In selecting from alternative courses of action, the manager should consider only the *differential revenue* and *costs* (the revenue and costs that will be changed by the decision). Suppose that the facilities can also be used to manufacture a line of product that can be sold for $25 per unit and that the increased cost to produce each unit has been estimated at $17. However, the company can only manufacture and sell 5,000 of these units each year.

The additional revenue expected from the alternate product line when compared with the original is $35,000.

Revenue from alternative line (5,000 × $25)	$125,000
Revenue from original line (6,000 × $15)	90,000
Additional revenue expected	$ 35,000
Increased cost, alternative line (5,000 × $17)	$ 85,000
Increased cost, original line (6,000 × $10)	60,000
Additional cost expected	$ 25,000
Net advantage, alternative line	$ 10,000