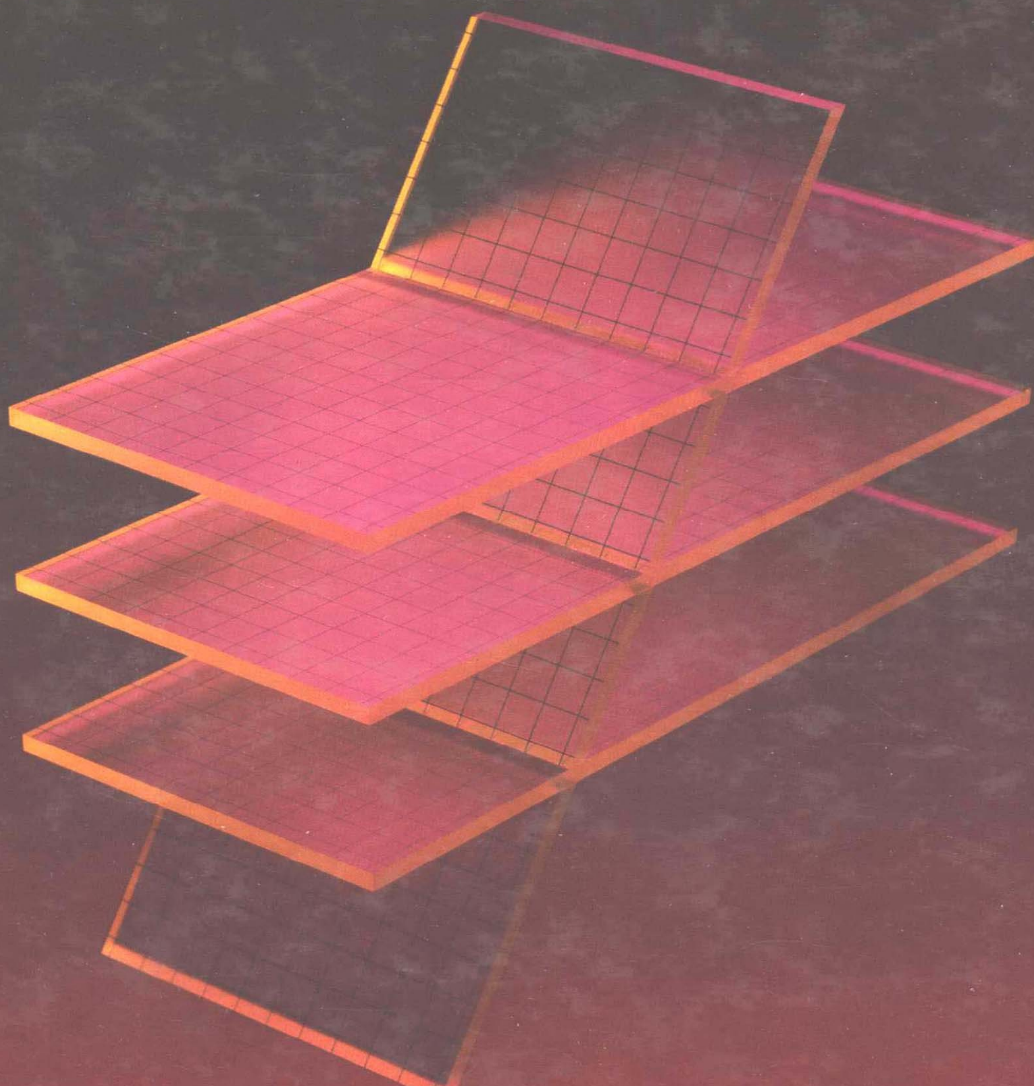
CALVIN ENGLER

MANAGERIAL ACCOUNTING

STATEMENT OF CASH FLOWS EDITION



In the interest of making this text as current as possible, this edition includes a fully revised Chapter 13—*Income Tax Effects on Capital Budgeting Decisions*—prepared in accordance with the

Tax Reform Act of 1986.

This printing also includes the latest Statement of Cash Flows in accordance with *SFAS No. 95.*

MANAGERIAL ACCOUNTING
Statement of Cash Flows Edition

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PREFACE

A knowledge of managerial accounting is essential for all aspiring accountants and managers of businesses and nonprofit entities. This text will help these individuals acquire the knowledge necessary to be successful in their chosen careers. It is presumed that students have already completed a course on the essentials of financial accounting.

Although this text was designed for a one-semester, undergraduate course, this text is sufficiently flexible that it can be used in a graduate course where no prior knowledge of managerial accounting is required. Also, the text may be used in those schools that follow a trimester or quarter system. The instructor's manual contains suggested course outlines for each of these programs.

Managers are concerned with the five major functions of management: (1) planning, (2) controlling, (3) organizing, (4) staffing, and (5) motivating. Since all of these functions deal with decision making, managers must have certain kinds of accounting information and then understand how to use this information. This book is designed to help aspiring managers acquire the knowledge needed to select and use the accounting information necessary for managerial decision making.

To provide students with a meaningful learning experience, the text is organized as follows:

1. At the beginning of each chapter the learning objectives of that chapter are stated to tell the students what they will learn.
2. Each topic is introduced by defining the key terms associated with that topic. All key terms in the chapter are printed in bold face type.
3. Each topic is discussed by first presenting the simplest aspects and then further developing the topic using a building block approach. Where necessary, the steps needed to prepare usable information are listed and discussed prior to the preparation of that information.
4. At the end of each chapter, there is a comprehensive summary of the chapter. Most of the key terms used in the chapter are discussed in the summary and are printed in bold face type.

5. To give instructors latitude in selecting topical coverage, difficult and enriched topics are placed in appendixes at the end of the chapter. One example of an enrichment topic is "The Human Factors of Budgetary Planning and Control." All appendixes are independent of the chapter, and there is no interruption of the chapter's continuity if an instructor chooses not to use an appendix.
6. In those chapters that require journal entries to illustrate a topic, these entries are minimal within the chapter. In general, an attempt has been made to defer journal entries to end-of-chapter Appendixes. The instructor then has the flexibility to decide whether to cover the journal entries without losing the continuity of the subject matter.
7. Key concepts discussed in a chapter are tabulated at the end of that chapter. Also, the uses and applications of these concepts together with the kinds of information needed to reach a decision using the concept are shown.
8. All key terms appear in a glossary at the end of each chapter. The definitions are similar to those found in the chapter. Over 350 key terms are defined in the glossaries.
9. The end-of-chapter exercises and problems contain a rich variety of material ranging from simple to challenging. Many of these problems were specifically designed to accompany the text coverage. In addition, other problems were carefully selected from problems on professional examinations and are identified as AICPA or CMA adapted.

ORGANIZATION OF THE TEXT

The text is organized into three parts. Chapter 1 introduces these three major divisions. It also discusses the nature and objectives of management accounting. The first division, Part 1, discusses the essentials of managerial accounting and is subdivided into chapters that discuss: (1) cost definitions and concepts, (2) job order costing, (3) process costing, (4) cost behavior, and (5) cost, volume, and profit analysis and relationships. The second major division, Part 2, discusses planning and control and is subdivided into chapters that discuss: (1) the master budget, (2) standard costing and performance evaluation for direct materials and direct labor, (3) flexible budgeting and manufacturing overhead analysis, (4) the contribution approach to segment reporting, (5) relevant data for decision making, (6) capital budgeting, (7) income tax effects on capital budgeting decisions, and (8) decentralized operations and transfer pricing. The third major division discusses selected additional topics and is subdivided into chapters that discuss: (1) selected quantitative methods for managers that include linear programming, inventory planning and control (economic order quantity, lead time, and safety stock), expected value, and payoff tables, (2) the statement of changes in financial position, and (3) financial statement analysis.

TEACHING AIDS

Various teaching aids are available to adopters of the book. In addition to the Instructor's Manual, the following are available:

1. Overhead transparencies provide instructors with a visual representation of assorted topics.
2. The Study Guide, an integral part of the teaching package, is designed to help students move above the level of the average student in the course. The material for each chapter includes: an introduction to that chapter, a chapter outline, and approximately 30 questions. Depending on the chapter, these questions include True/False, Multiple Choice, short Exercises and some Matching questions.
3. The test bank has over 1,000 items arranged in three levels of difficulty. The first level of questions is similar to the examples in the text. The second level has more difficult questions while the third level has questions that are AICPA or CMA adapted.
4. A computerized software package increases the flexibility of the pedagogical approach to learning managerial accounting.
5. Check figures for the solution of textual material are available for instructors and students.

ACKNOWLEDGMENTS

There are many individuals who have contributed their expertise to improve the first draft of this book, and I am especially grateful to them. My first and foremost debt, however, is to University Distinguished Professor Emanuel Saxe. I was extremely privileged to have been his student and I am most fortunate to count him as one of my dearest friends. He painstakingly read this manuscript and made numerous suggestions for improving the initial draft. Only those individuals fortunate enough to have been exposed to his special analytical reviews can appreciate the impact of his contribution.

I am also grateful to one of my dearest friends and coauthor on another work, Leopold A. Bernstein, for his permission to rework portions of his book, Financial Statement Analysis, for use in Chapters 16 and 17 of this work. His analytical review of these resulting chapters is greatly appreciated.

Numerous other individuals have made contributions to this work. I am grateful to John G. Driscoll, President of Iona College, who generously gave his time during the incubation stage of this text and encouraged me to proceed with this project. Charles F. O'Donnell, Dean of the Hagan School of Business, provided me with moral support and was instrumental in securing my release time from teaching so that I could complete this project. Daniel K. Kast, the former chairperson of Iona's accounting department, also encouraged me to proceed with this project and was extremely cooperative during the writing phase of this book.

Of the many individuals who reviewed all or part of this book, I am especially grateful to Anthony P. Curatola of Louisiana State University and Kenneth P. Sinclair of Lehigh University. Their thorough and painstaking reviews provided me with valuable suggestions which were incorporated in the text. Anthony P. Curatola also deserves a special thanks for preparing the test bank and study guide that is available to users of this text.

Other reviewers who made valuable contributions to this work include Abdel Agami of Old Dominion University, David M. Buehlmann of the University of Nebraska at Omaha, J. Stephen Collins of Boston College, Paul Keat of IBM and Pace University, and my esteemed colleague at Iona College, Donald Moscato.

Students at Iona College who assisted me with the testing of the problem material and in the preparation of the solutions to the problems are Deborah Costello, Janet Lynch, and Geoffrey Shelton. The enormous typing task fell to Freda Strauss of Wordpro and she deserves many thanks for adhering to the typing schedule.

Permission has been received from the Institute of Management Accounting of the National Association of Accountants to use questions and/or unofficial answers from past CMA examinations.

No work of this magnitude can be completed without enormous sacrifices by the writer's family, and this is certainly true in my case. I am fortunate that my family fully understood the demands that the writing of this manuscript made on my leisure time. In addition, my wife, Phyllis, took time away from her own professional pursuits to provide me with invaluable editorial and proofreading assistance throughout the development of this book. My children, Linda and Mitchell, assisted me with proofreading various portions of the text and as college students, provided me with their reactions to the pedagogical treatment used in this book. I will always be grateful for the understanding and help my family has given me.

Of course, the work on a text is never truly complete. There is always room for polishing and revision. I welcome comments from adopters and others who can help me to improve this text in subsequent editions.

Calvin Engler

CONTENTS

MANAGERIAL ACCOUNTING

Accounting is the process of recording, classifying, summarizing, and reporting transactions and events of a financial nature, and interpreting the results. **Managerial accounting** is one area of accounting that specializes in providing information that the managers of an organization will find useful for the purposes of internal decision making. Thus, a firm's internal accounting information system should (1) enable managers to plan for the operations of their business, (2) include processes that enable managers to assess how effectively their plans are being implemented, (3) provide the data needed to control operations, and (4) provide the data needed for decision making. Of necessity, *some* information that managers need is historical in nature, but most of it is either very recent or future oriented.

FINANCIAL ACCOUNTING VERSUS MANAGERIAL ACCOUNTING

Financial Accounting

While managerial accounting serves a firm's internal needs by providing recent and future-oriented information, the focus of **financial accounting** is primarily on historical reports. The information that financial accountants compile is intended primarily for external use by investors, creditors, potential investors, employees and their unions, government agencies, and others. The information provided to these groups usually consists of the results of operations for a period of time (an income statement), the financial position of the organization at a specific point in time (a balance sheet), and a statement of changes in financial position for the period of operations under examination.

Financial accounting is regulated in an attempt to ensure that the resulting reports are understandable, reliable, and relatively consistent between comparable reporting periods. The principal regulatory body is the Securities and Exchange Commission (SEC). In addition, the American Institute of Certified Public Accountants (AICPA) sets ethical standards for the accounting profession, while the Financial Accounting Standards Board (FASB), an independent standard-setting body, sets procedural standards.

The FASB's pronouncements on accounting matters have come to be recognized as *generally accepted accounting principles (GAAP)*. As a result of the SEC's and the AICPA's efforts, all of a firm's financial statements must meet minimum standards of disclosure and show a degree of uniformity in the reporting of transactions that are the same or similar. Of necessity, the information must be summarized in the financial statements—rather than reported in full—because so many transactions occur during the course of a reporting period. However, user groups disagree on the amount and kind of information and disclosures that should be presented. To ensure adherence to GAAP, companies must hire public accounting firms to review their financial statements. The review procedure is conducted in a manner that meets generally accepted auditing standards (GAAS) as developed and codified by the AICPA.

The Nature of Managerial Accounting

Since managerial accounting serves internal purposes, it is not constrained by government regulations and generally accepted accounting principles. Instead, managerial accountants are free to generate any information that managers will find useful. To the extent possible, managerial accounting should provide information that will aid managers in carrying out their five basic duties:

1. **Planning**—Deciding what objectives to pursue during a future time period and what to do in order to achieve those objectives.
2. **Controlling**—Measuring performance against objectives, determining causes of deviations, and taking corrective action when necessary.
3. **Organizing**—Grouping activities, assigning activities, and providing the authority to carry out the activities.
4. **Staffing**—Determining human resource needs, recruiting, selecting, training, and developing human resources.
5. **Motivating**—Directing and channeling human behavior toward the accomplishment of objectives.[1]

These duties will be discussed in greater detail later in this chapter.

To be useful, managerial accounting information must be as reliable as possible, and when estimates are provided, they must be based on sound estimating practices. Thus, a management accountant must have some familiarity with statistical theory, probability theory, mathematics, and computer applications.

In addition to accounting information, managers use data provided by engineers, economists, mathematicians, sales and marketing specialists, psychologists, and others. The management accountant is but one member of a broad-based management team.

Illustration 1–1 summarizes and contrasts the differences and similarities between managerial and financial accounting.

INFORMATION FOR DECISION MAKERS

Sound **decision making**—the process of searching the environment for conditions that require attention, developing and analyzing possible responses, and selecting an appropriate course of action—is crucial to the success of any enterprise. Managers of businesses and not-for-profit organizations make many decisions in the course of their duties. These decisions run the gamut from how many units of a particular product to manufacture on a particular day to the kinds of products the company should produce in the coming decades and how to produce them. As a result, the information that managers require to make these decisions is varied. Much of the information is **quantitative**—that is, numerical in nature—and can be obtained either from the company's books and records or from industry statistics. Most kinds of quantitative information are estimated and may be based on statistical probability

[1] Leslie W. Rue and Lloyd L. Byars, *Management: Theory and Application,* 3d ed. (Homewood, Ill.: Richard D. Irwin, 1983), p. 11.

ILLUSTRATION 1-1 Differences and Similarities—Managerial and Financial Accounting

	Managerial Accounting	Financial Accounting
1. Users of data.	Managers of the firm.	Outsiders—stockholders, investors, creditors, financial analysts, government, and employee unions.
2. Record-keeping and reporting.	Not mandatory.	Mandatory—reporting to stockholders, regulatory commissions, and governmental agencies.
3. Standards of reporting.	None.	Prescribed by the FASB, SEC, AICPA, and other regulatory agencies.
4. Kind of information presented.	Recent actual data and estimated, future-oriented data.	Verifiable, typically historical data.
5. Data's frame of reference.	Product lines, geographic territories, and production departments.	Company as a whole, with *some* segmented disclosure, but not in the same detail as in managerial accounting.
6. Providers of information.	Managerial accountants, engineers, economists, mathematicians, sales and marketing specialists, and psychologists.	Financial accountants and independent auditors.
7. Data format.	Any forms that managers find useful. No constraints.	Some flexibility within the constraints imposed by the SEC, FASB, and AICPA.

distributions or simulated models. In addition, information of a nonquantitative nature—or **qualitative information**—must also be factored into decision making. Because qualitative information is difficult to include with quantitative information, the decision-making process can become complicated.

Quantitative Information. Most of the quantitative information that managers need can be provided by the management accountant. For example, a manager who is contemplating the remanufacture of a product that has not been made for a period of time will require two primary pieces of information: (1) the expected selling price of the product and (2) the expected cost of manufacturing the product. The management accountant, a member of the management team, would consult company records and report the cost of raw materials when the product was made previously, as well as past wages, required hours, and other *relevant* historical data. **Historical data** are numerical pieces of information based on past events. In addition, the management accountant would report the present wage rates for required labor, the present—actual or estimated—cost of raw materials, and other *relevant* current information. **Current data** are numerical bits of information applicable to the immediate future. Based on these data, the management accountant would be able to calculate the estimated current cost of manufacturing the product. In addition, the sales manager would be asked to provide estimates of the product's selling price based on competition and marketing strategies. A decision would then be made about whether to proceed with the manufacture of the product.

Other kinds of decisions that managers make and the kinds of quantitative information they require appear in Illustration 1–2. Although this list is not all inclusive, it illustrates that managers rely heavily on management accountants to supply the information they need to make decisions that will affect their company's financial success.

Qualitative Information. Not all information needed for decision making is quantitative. Even though qualitative information cannot be reduced to numerical values, it can be very important. For example, if a manager is contemplating the installation of custom-made draperies in all executive offices, the cost can be measured quantitatively. But aside from the draperies' possible effect on the cost of heating, the benefits that the firm will derive

ILLUSTRATION 1–2 **Kinds of Decisions and Related Quantitative Information Needed**

Kinds of Decisions	Kinds of Quantitative Information Needed
1. Purchasing new equipment.	The cost of the new equipment; the costs saved by the new equipment.
2. Replacing old equipment.	The cost of the new equipment; the difference in operating costs between the old and the new equipment; the selling price of the old equipment.
3. Entering a new market.	Revenues and costs of entering the market.
4. Discontinuing a product.	Revenues lost and costs saved by discontinuing the product.
5. Making or buying component parts.	The costs of making the part; the cost of purchasing the part.
6. Expanding production of an existing product.	The additional revenues from expansion; the additional costs from expansion.
7. Decreasing production of an existing product.	The revenues lost and the costs saved by decreasing production.
8. Taking special orders at less than full cost.	Additional revenues and additional costs of the special order.
9. Product pricing.	Costs of producing the product.
10. Selling joint products at a split-off point or processing further.	Additional processing costs and additional revenues from further processing.
11. Purchasing an existing business.	Revenues generated and costs incurred as a result of the purchase.

from their installation are impossible to measure quantitatively. Assume, for instance, that based on a visit to an accounting firm's offices, a potential client decides to hire that firm. Measuring how much of the client's decision was based on the draperies and how much was based on discussions with the firm's partner is impossible. However, some value must be assigned to items such as draperies, carpeting, and impressive furniture. If not, there would be no purpose in incurring these costs when bare windows and floors and a simple desk and chair would accomplish the same result.

Other examples of qualitative information are:

1. The effect that the implementation of a nonunion negotiated pension plan has on employee productivity.
2. The effect that the automation of labor-intensive operations has on employee morale.
3. The effect that basing promotions on merit rather than on longevity has on employee morale.
4. The effect that keeping inventories low and allowing frequent stockouts to occur has on customer goodwill. (Note, however, that the lost profit on the lost sale can be measured quantitatively.)
5. The effect that the consideration of temporary layoffs has on employee morale.
6. The effect that busy telephone switchboards or asking customers to hold the line for long periods of time has on customer goodwill.
7. The effect that employees' rudeness to customers has on customer goodwill.

As the partial list suggests, managers must consider many kinds of qualitative information before making decisions.

ORGANIZATIONS AND THEIR STRUCTURE

A review of typical organizational structures can give some insight into the informational needs of management and the interrelationship of managers and management accountants. While basic organizational principles are usually thought of in terms of profit-oriented businesses, they are equally valid for not-for-profit entities such as hospitals, colleges, and community-service organizations.

Organization Charts

To ensure smooth operations, most firms are organized along specified lines of authority. In a very small firm, one leader can single-handedly run the company and make all necessary decisions. But as an organization grows, it becomes increasingly difficult for one individual to keep track of all pertinent information and make all decisions. As more people become involved in decision making, decentralization occurs. Most business experts agree that decisions should be made by the level of management that is closest to the situation. For example, if a decision must be made to allow some employees