Second Edition

Management Accounting

Analysis and Interpretation

Cheryl S. McWatters

Dale C. Morse

Jerold L. Zimmerman

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McGill University

Dale C. Morse
University of Oregon

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University of Rochester

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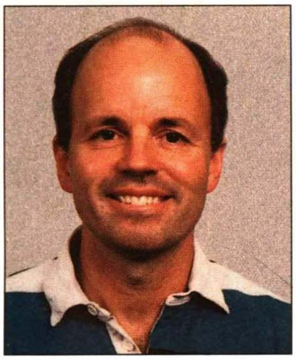
Dr. McWatters's main research interests are accounting history, and the organizational implications of manufacturing technologies. Her research has appeared in a variety of journals including *Accounting History, Accounting, Business and Financial History, The Accounting Historians Journal,* and the *Journal of Cost Management.* She has also contributed to collected volumes, including *Twentieth-Century Accounting Thinkers* and *Studies in Accounting History.* She is Book Review Editor of *The Accounting Historians Journal* and an editorial board member of *Accounting History.*

Cheryl McWatters is a member of the Canadian Academic Accounting Association, the American Accounting Association, the Society of Management Accountants of Ontario, the Academy of Accounting Historians, and the Administrative Sciences Association of Canada. Prior to academia, she worked in the public and private sectors, experiencing first-hand the organizational role of management accounting.

Dale C. Morse



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Dr. Morse's research has appeared in the *Journal of Accounting Research, Journal of Accounting and Economics, The Accounting Review,* and *Accounting Horizons.* His monograph, "Efficient Capital Markets and Accounting: A Critical Analysis," (with Tom Dyckman) is part of the Prentice-Hall "Contemporary Topics in Accounting" series. Dale Morse is a member of the American Accounting Association, American Finance Association, Institute of Management Accountants, and the Western Finance Association.

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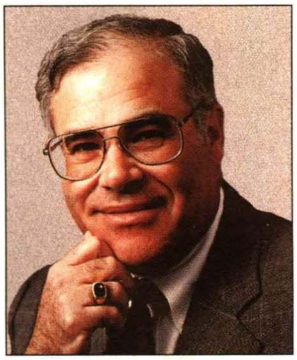


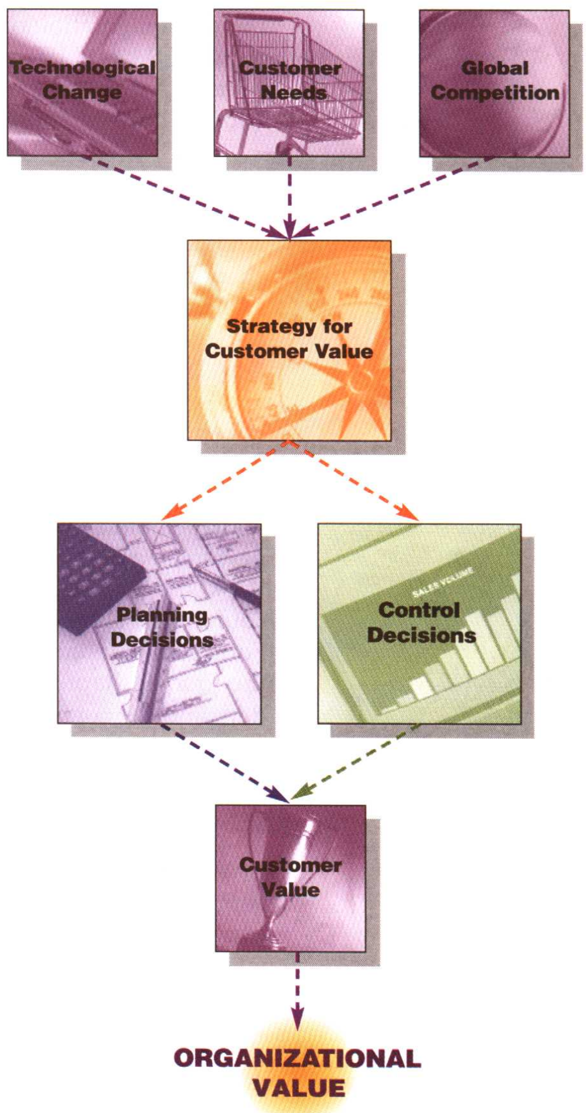
Jerry Zimmerman is the Ronald L. Bittner Professor at the William E. Simon Graduate School of Business Administration, University of Rochester. He holds an undergraduate degree from the University of Colorado, Boulder, and a doctorate from the University of California, Berkeley. While at Rochester, Dr. Zimmerman has taught a variety of courses spanning accounting, finance, and economics. A deeper appreciation of the challenges of managing a complex organization was acquired by spending four years as Deputy Dean of the Simon School.

Dr. Zimmerman publishes widely in accounting on topics as diverse as cost allocations, municipal accounting, budgeting, taxes, auditing, financial accounting theory, mergers and acquisitions, trade unions, capital markets, and executive turnover. His paper, "The Costs and Benefits of Cost Allocations," won the American Accounting Association's competitive Manuscript Contest. He is recognized for developing Positive Accounting Theory. This work, co-authored with Ross Watts, also at the University of Rochester, received the 1978 and 1979 American Institute of Certified Public Accountants' Notable Contribution to the Accounting Literature Awards for "Towards a Positive Theory of the Determination of Accounting Standards" and "The Demand for and Supply of Accounting Theories: The Market for Excuses." Both papers appeared in the *Accounting Review.* They are also co-authors of the highly cited textbook, *Positive Accounting Theory* (Prentice Hall, 1986). Jerry Zimmerman was a founding editor of the *Journal of Accounting and Economics,* published by North-Holland, a scientific journal that is one of the most highly referenced accounting publications.

Preface

In a dynamic environment, organizations must evolve to keep pace with major forces, including technological change, globalization, and customer demand. Organizations and their managers depend on management accounting to provide information that enables them to deal successfully with a changing environment. Managers in all organizations, profit and not for profit, interact with their management accounting system. Sometimes the manager uses the accounting system to acquire information for making planning decisions. At other times, the accounting system measures the performance and influences the behavior of the manager. The management accounting system is both a source of information for making planning decisions and part of the organization's control mechanisms. Management accounting helps organizations to create value through improved decision making and control of organizational members.

This book provides students and managers with an understanding and appreciation of the strengths and limitations of an organization's accounting system, thereby allowing them to be more intelligent users of the system. This book is based on an analytical framework for organizational change that illustrates the way organizations must adapt to create customer and organizational value. This framework is a way of thinking about the organization's accounting system and a basis for analyzing proposed changes to the system. The text demonstrates that management accounting is an integral part of the firm's organizational strategy, not an isolated set of computational topics. The success of an organization is closely linked to having the appropriate management accounting system.



DISTINGUISHING FEATURES

Framework for Organizational Change

This book differs from other management accounting texts in several ways. The most important difference is the incorporation of the study of management accounting within an analytical framework for organizational change. Organizations must adapt to environmental forces by developing a strategy to create customer value. To implement this strategy, the management accounting system provides the organizational mechanisms to make planning and control decisions.

The conceptual framework depicted to the right is unique to this book. This framework is introduced in Chapter One, referenced at the opening of each chapter, and highlighted throughout the text with icons so that the student understands the "big picture" of management accounting. Most management accounting textbooks cover concepts in isolation, which provides only *half* of the picture. We believe that students learn best when they can relate important concepts to the overall objective of management accounting: helping to achieve customer and organizational value through sound business decision-making. We achieve this objective with the aid of this outstanding pedagogical tool.

Trade-Offs

This text emphasizes the fact that a single accounting system cannot always fulfill the information demands to make planning decisions and to control managers to successfully achieve organizational strategy. For example, an accounting system used as a control mechanism is likely to be less effective for making planning decisions. Most texts stress the importance of deriving different estimates of costs for different purposes. Existing books do a good job of illustrating how accounting costs developed for one purpose, such as inventory valuation, cannot be used without adjustment for other purposes, such as a make-or-buy decision. However, these books often leave the impression that one accounting system can be used for multiple purposes as long as the users make the appropriate adjustments in the data. Existing texts do not emphasize the trade-off between designing the accounting system for planning decisions and designing it for control. For example, the implementation of management innovations, such as activity-based management, TQM, and JIT, presumably improves the accounting system's ability to support planning decisions (pricing and product design), but existing texts do not address how the implementation of these innovations affects control decisions.

Logical Sequence

Another meaningful distinction between this text and others in the field is that the chapters in this text build on each other. The first chapter presents in detail the analytical framework for organizational change incorporated throughout the text. It also identifies the trade-off that exists among different uses of an accounting system. The next four chapters focus on strategy and planning decisions. Chapters Six and Seven utilize the framework to examine strategy and organizational problems of control. The next four chapters highlight planning and control issues by developing the basic theme of the trade-off that exists when using an accounting system for making planning decisions and control purposes. Chapter Twelve explores management accounting's role in a dynamic environment, especially in relation to new management innovations. This chapter both summarizes the remainder of the book and looks to the future in the context of recent trends in management accounting. It should be covered last. Chapters Thirteen (Investment Decisions) and Fourteen (Standard Costs and Variance Analysis) can be added to the sequence of the first 12 chapters (preferably after Chapter Eight) but are not necessary to understand the concepts introduced in the first 12 chapters.

Pedagogical Devices

This book adopts an analytical framework for organizational change that links management accounting to organizational strategy and uses the foundation concepts of opportunity cost and organizational theory. However, students are not expected to have any background in these areas. The book also can be read with a minimal understanding of financial accounting and is designed as an introductory text in management accounting appropriate for entry-level undergraduate students.

We encourage critical thinking by providing an organizational change framework for analyzing management accounting problems. Thought-provoking, real-world examples and recent events are integrated throughout the text to illustrate the diverse role of management accounting in organizations. Business Analyses are features that provide more detailed examples of management accounting in action. Many of these items have Internet links to encourage students to explore these situations and organizations beyond the textbook. The Business Analyses pose questions linked to the analytical framework; there are no "correct" answers to these questions, but students should enjoy analyzing and investigating these real-world situations.

Text material is written as simply and concisely as possible and with a minimum of technical jargon to avoid confusion. The text material is supplemented by examples from organizations familiar to students. Each chapter has an organizational example that continues throughout to illustrate the chapter concepts. Other simple examples, both numerical and conceptual, are provided. The numerical examples focus primarily on a specific concept.

Numerical Example 9.3

A motor pool allocates costs to other departments of the same organization based on the number of miles driven in company cars. The motor pool expects to incur annual fixed costs of \$200,000 and variable costs of \$0.20 per mile driven. Company cars are expected to be driven a total of 800,000 miles. What application rate does the motor pool use? How does that application rate lead to underuse of the motor pool and costly behavior by other departments?

Solution

The application rate is the total expected costs in the motor pool divided by the total expected miles driven:

$$\frac{\$200{,}000 + (\$0.20/\text{mile})(800{,}000\text{ miles})}{800{,}000\text{ miles}} = \$0.45/\text{mile}$$

This application rate, however, is higher than the incremental cost of operating an automobile, which is \$0.20 per mile. The application rate acts as a transfer price. Therefore, managers in other departments will choose to use other means of transportation if the cost per mile of alternative transportation is less than the application rate of \$0.45 per mile for the motor pool. The entire organization would benefit, however, if the motor pool were used whenever the cost of the alternative means of transportation exceeded \$0.20 per mile.

BusinessAnalysis

Before the break-up of AT&T, the long-distance telephone market was regulated. Public boards set rates at levels sufficient to cover the cost of the telephone service and provide profit for AT&T. AT&T controlled almost all access to telephones in the United States, and there was very little domestic competition. Subsequent to the deregulation of long-distance services, companies such as MCI and Sprint entered the market. With the advent of wireless telephone service and the potential for Internet and television cable providers to enter the market, the long-distance telephone industry has become one of the most competitive in the world. Even with many large mergers, global competition remains intense as is evident around dinnertime when companies often make sales calls.

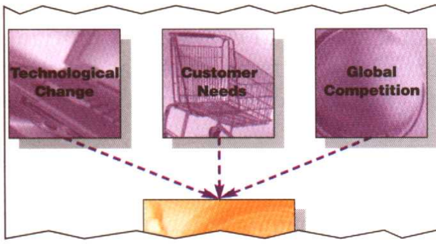
Technological Change

The cost of providing a long-distance telephone call plays an important role in the turmoil surrounding the long-distance telephone market. Almost all of AT&T's long-distance telephone services are facility- or product-level activities that include the establishment and maintenance of satellite and trunk lines, research and development, and sales activities. Billing services could be considered at the batch level if service to each customer is perceived as a batch. There are essentially no cost activities at the unit level except payment to the local telephone companies (the Baby Bells) for the use of their lines. Therefore, the marginal cost of providing one more long-distance telephone call for an existing customer is very small as long as the network has sufficient capacity. If the system is very busy, an additional call can delay other calls, reducing the customer's value of AT&T's service.

This product cost structure and the intense competition provide some interesting problems for AT&T in making pricing and other strategic decisions. What are some creative ways for AT&T to compete on price? What types of acquisitions could help solidify AT&T's position in the long-distance market?

A free student CD-ROM includes alternate versions of these numerical examples with hints and immediate feedback. Students can work through these additional examples at their own pace and improve their quantitative skills. When a numerical example is marked with a CD-ROM icon, students can go to the CD-ROM to work through several variations of similar problems.

Each chapter begins with a list of learning objectives, which are reinforced with conceptual review questions throughout the chapter. The summary of each chapter is a short description of these learning objectives.



LEARNING OBJECTIVES

1. Use budgeting for planning purposes.
2. Use budgeting for control purposes.
3. Identify the conflicts that exist between planning and control in the budgeting process.

Concept**Review**

1. What are the planning benefits of budgeting?
2. What are the control benefits of budgeting?
3. How do planning and control issues lead to conflict in the budgeting process?

SUMMARY

1 Use budgeting for planning purposes. Budgeting facilitates the flow of information from the bottom up for general planning and from the top down for coordination.

2 Use budgeting for control purposes. The budget is used to allocate responsibilities to different members of the organization and to establish performance measures, which are used to reward managers.

3 Identify the conflicts that exist between planning and control in the budgeting process. The flow of information in the budgeting process might be inhibited or biased because the information used for planning is often the same information used for performance evaluation.

long-term planning. Short-term budgets are used for both planning and control.

5 Explain the responsibility implications of a line-item budget. Line-item budgets constrain responsibilities by limiting managers' ability to shift resources from one use to another.

6 Identify the costs and benefits of budget lapsing. Budget lapsing constrains the manager to expend resources in the budget period. This policy provides increased control; however, managers are not able to use their specialized information to make more efficient decisions and frequently are motivated to consume excess resources during the budgeted period.

END-OF-CHAPTER MATERIAL

The end-of-chapter problem material is an integral part of this text. The first section of problems is a set of numerical exercises (NE) similar to the numerical examples in the body of the chapter; they are clearly identified in terms of the learning objectives and concepts addressed. Students should be able to refer to the numerical examples in the text to complete the problems. The second section provides longer numerical problems (NP) that frequently combine numerical computations, analysis, and interpretation with the concepts learned in the chapter. The next section is devoted to analysis and interpretation problems (AIP) that reinforce the text's framework for organizational change. The AIPs require students to develop critical thinking skills and to write short essays presenting their analyses. Good problems excite students about the material and generate lively class discussions. Many problems do not have a single correct answer; instead, they contain multiple dimensions demanding a broad management perspective. The last section of extended AIPs emphasizes the need for students to combine analysis and interpretation with numerical computations within the broader context of organizational change. End-of-chapter material ranges in level of difficulty, allowing instructors to tailor the course to their particular requirements.

CHANGES IN THE SECOND EDITION

Beginning with the title, this text has a number of important changes from the first edition. The new title, *Management Accounting: Analysis and Interpretation*, emphasizes the authors' goal to meet the call by managers and accounting professionals for the development and encouragement of students' critical thinking skills.

Strategy for Customer Value

Throughout the text, the framework for organizational change is a unifying theme that offers students an analytical approach linking management accounting to the broader organizational context. In each chapter, icons identify the various components of the analytical framework.

The role of management accounting in actual organizations is illustrated and reinforced through the integration within the text of real-world examples. The Business Analyses expand and replace the What's Happening sidebars of the first edition and provide students with increased opportunity to explore management accounting in action.

Each chapter has been rewritten with the pedagogical approach revised in terms of the analytical framework. Feedback from users has led to the inclusion of additional straightforward numerical examples and exercises tied to the learning objectives and concepts.

Difficult concepts and material of a more technical nature have been rewritten and often moved to an appendix at the end of the chapter. This approach allows instructors to determine the depth of topic coverage for nonaccounting as well as accounting majors.

The end-of-chapter material has been reorganized and expanded. The addition of Numerical Exercises provides a series of quick problems for student review and in-class use. The Numerical Problems have been extended with more emphasis on analysis and interpretation in both decision-making and control contexts. The Analysis and Interpretation Problems (previously Discussion Problems and Cases) have been supplemented. These problems challenge students to critically examine issues from multiple perspectives, not overlook the need for computational skills.

Chapter Fifteen, Managerial Accounting in International Organizations, of the first edition has been replaced with the integration of international examples and issues throughout the text. This approach should encourage students to understand the global context in which management accounting and organizations operate.

SUPPLEMENTS FOR THE INSTRUCTOR

Solutions Manual (0-07-290856-4)

Prepared by the authors, this manual contains detailed solutions for all end-of-chapter material in *Management Accounting*. The Solutions Manual has been accuracy checked by independent parties. Electronic files of the solutions manual are available at the text's Online Learning Center (www.mhhe.com/mmz) and on the Presentation Manager CD-ROM.

Instructor's Resource Guide (0-07-290858-0)

Prepared by the authors, this manual includes detailed teaching ideas for *Management Accounting*. The authors discuss ways to divide the text into class size sections for three- or four-credit quarters or semester courses, classify problem material according to difficulty, and suggest alternative teaching strategies for end-of-chapter material (including ways to use it to promote cooperative learning). Conversion notes to make the transition from leading competitors to *Management Accounting* are also provided and highlight some material available to adopters of *Management Accounting*. The Instructor's Resource Manual also provides additional "real-life" scenarios that include references to simple organizations that students understand and current events of better-known, larger organizations.

Ready Shows (0-07-561765-X)

Prepared by Jon A. Booker, Charles W. Caldwell, Susan C. Galbreath, and Richard S. Rand, all of Tennessee Technological University, Ready Shows is a comprehensive package of multimedia lecture enhancement aids that use PowerPoint® software to illustrate chapter concepts.

Test Bank (0-07-290824-6)

This comprehensive test bank contains more than 1,200 items. For each chapter of *Management Accounting*, adopters have the choice of objective questions, numerical problems, and discussion problems.

Presentation Manager (0-07-242241-6)

This all-in-one resource contains the Instructor's Manual, Test Bank, and PowerPoint presentations organized by chapter. A computerized version of the test bank is available in Windows format and was developed using Diploma software—a new and easy-to-use software, this option provides more flexibility in designing your assessment tools. Thanks to the Presentation Manager, you can create a multimedia presentation that incorporates video, PowerPoint, solutions, and lecture outlines into one presentation.

Video Guide (0-07-561720-X)
Richard D. Irwin Managerial/Cost Video Library

These short, action-oriented videos provide the impetus for lively classroom discussion. This six-volume library includes videos of international and service companies as well as many manufacturing examples, as outlined here:

Richard D. Irwin Managerial /Cost Video Library I (0-256-13511-8)

"Behind the Bill"
"The Vancouver Door Company"
"How Many Bucks in a Bag"

Richard D. Irwin Managerial/Cost Video Library II (0-256-13512-6)

"Moving the Merchandise"
"Ogre Mills, after the Curtain Fell"

Richard D. Irwin Managerial /Cost Video Library III (0-256-14970-4)

"Lean Production"
"Quality"
"The Manufacturing Process"

Richard D. Irwin Managerial/Cost Video Library IV (0-256-14971-2)

"Computer-Integrated Manufacturing"
"Inventory Management"
"Service"

Richard D. Irwin Managerial/Cost Video Library V (0-256-14972-0)

"Manufacturing"
"Supplier Development Outreach"
"Program"
"Accounting Careers"

Richard D. Irwin Managerial/Cost Video Library VI (0-256-15924-6)

"Atlas Foundry and Machine Company"
"Management Accounting and Concepts"
"International Accounting"

SUPPLEMENTS FOR THE STUDENT

Free Interactive and Text-Integrated Student CD

A free, interactive student CD is provided to students that purchase a new textbook. This CD is designed to enhance the learning experience by providing additional practice in the **quantitative** and **qualitative** aspects of managerial accounting. As a result, the CD is divided into two sections: one providing additional practice on the numerical aspect of managerial accounting and the other providing additional practice in effective decision making. Students who use this innovative and valuable resource in conjunction with the textbook will achieve a balanced perspective of managerial accounting. As a result, they will better understand the **"big picture"** of managerial accounting—a major recommendation of the Accounting Education Change Commission (AECC).

The purpose of the first section of the CD is to provide additional practice and reinforcement for students that have difficulty with the quantitative aspect of managerial accounting. Each chapter in the textbook contains many *Numerical Examples* to help students gain a better understanding of how to quantify decision alternatives. Several of these *Numerical Examples* are marked with a CD icon to indicate to students that additional practice is available on the student CD. They will be provided with several variations to the corresponding *Numerical Example* in the textbook to aid in their comprehension. This interactive feature provides feedback to the student so they are able to improve this important skill set.

The purpose of the second section of the student CD is to place the student in the role of decision maker. Each chapter in the textbook contains a vignette woven throughout the chapter to highlight the key concepts in the context of a business setting. We have altered these vignettes for the student CD, and we have made them interactive. The unique conceptual framework presented in Chapter One, and referenced throughout the text, serves as the interface as students progress through a series of decision alternatives. Each scenario begins with either a technological change, a change in customer needs, or global competition that impacts the student's business. They must then decide, by selecting from strategic alternatives, how they will respond to this challenge in order to continue to provide customer value. Depending on their strategic decision, they will be prompted to select from planning and/or control decision alternatives. Based on the quality of their decisions, they will achieve either customer and organizational value, or they will be prompted to try again. This innovative and fun learning tool will improve the student's analytical skills.

Text Support Website
www.mhhe.com/business/accounting/mmz

Our marketing research indicates that when students visit text support websites an overwhelming majority gravitate to the online quizzing feature. As a result, we have greatly enhanced the quizzing component to our website. Most supporting websites provide 10–15 questions per chapter with minimal or no feedback. We provide students with 40–60 questions per chapter with feedback so they can obtain as much practice as necessary to better comprehend the important concepts presented in each chapter. They are particularly effective in preparation for exams to determine where additional studying is needed. Our research also indicates that many instructors like to quiz students prior to the start of class to motivate students to come to class prepared. For this reason we have provided an option for students to email their instructor their completed quiz. In addition to the enhanced quizzing component, we offer an array of additional online study tools.

PowerWeb

This content rich, online resource contains managerial and cost accounting specific articles, exercises, current events, additional self grading quizzes, interactive exercises, an interactive glossary, and daily news relevant to managerial accounting. The content was created by managerial and cost accounting professors and is frequently updated. Of course, the daily new is updated each day.

Acknowledgments

We received tremendous feedback from users and nonusers of the first edition. We began with a detailed survey to obtain more input regarding our framework, pedagogy, and end-of-chapter material, as well as other issues facing the managerial accounting course. More than 50 instructors responded, and their suggestions were instrumental in defining the look and feel of this text. We gratefully acknowledge all who participated in our survey:

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In 1999, McGraw-Hill/Irwin collaborated with the Gary Siegel Organization, Inc. (GSO), on an extensive study of the management accounting course. The goals were to identify the way the management accounting course is changing and what textbook features and support materials would help address these changes. GSO conducted in-depth interviews with management accounting instructors at 150 schools.

Highlights from the interview results are available at our book's Online Learning Center (www.mhhe.com/mmz). The feedback we received was vital in determining the topics we emphasized, the types of problem material we developed, and the supplement package we created. We extend a special thanks to the many instructors who participated in these interviews and to the Gary Siegel Organization, Inc., for its superb work in conducting this research and analyzing the results.

Finally, we thank our colleagues at McGraw-Hill/Irwin for their help in developing and producing *Management Accounting: Analysis and Interpretation.*

Management accounting is an exciting and thought-provoking topic. We believe that this book should encourage students to pursue its study further. We appreciate any comments that help us to achieve this goal.

Cheryl S. McWatters

Dale C. Morse

Jerold L. Zimmerman

Brief**Contents**

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