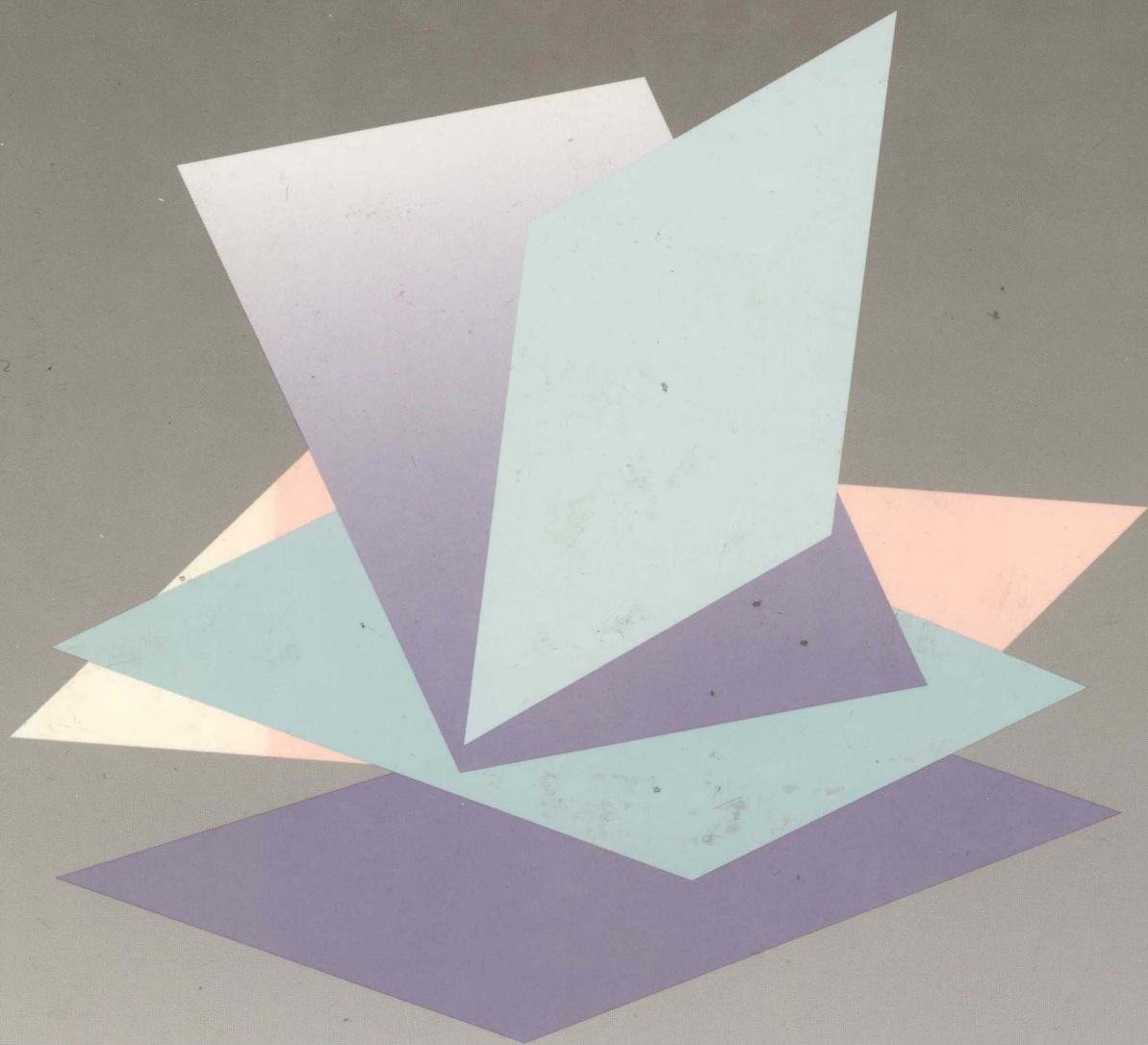


# MANAGEMENT ACCOUNTING

---

HANSEN



---

# Management Accounting

**DON R. HANSEN**

Oklahoma State University

---



**PWS-KENT Publishing Company**

**BOSTON**



**PWS-KENT**  
Publishing Company

20 Park Plaza  
Boston, Massachusetts 02116

---

Materials from the Certificate in Management Accounting Examinations, Copyright 1981, 1982, 1983, 1984, 1985 by the National Association of Accountants are reprinted and/or adapted with permission.

Copyright © 1990 by PWS-KENT Publishing Company. All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transcribed, in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the prior written permission of PWS-KENT Publishing Company, 20 Park Plaza, Boston, Massachusetts 02116.

PWS-KENT Publishing Company is a division of Wadsworth, Inc.

**Library of Congress Cataloging-in-Publication Data**

Hansen, Don R.

Management accounting / Don R. Hansen.

p. cm.

ISBN 0-534-91797-6

1. Managerial accounting. I. Title.

HF5657.4.H36 1990 89-39593

658.15'11—dc20 CIP

Printed in the United States of America

2 3 4 5 6 7 8 9—94 93 92 91 90

*Sponsoring Editor:* Rich Pellagrini

*Production Editor:* Pamela Rockwell

*Manufacturing Coordinator:* Margaret Sullivan Higgins

*Interior Design:* Julia Gecha

*Cover Design:* Nancy Lindgren

*Typesetting:* Progressive Typographers

*Cover Printing:* Henry F. Sawyer

*Printing and Binding:* R.R. Donnelley & Sons

---

# **Management Accounting**

---

## KENT SERIES IN ACCOUNTING

---

- AlHashim and Arpan, **INTERNATIONAL DIMENSIONS OF ACCOUNTING**, Second Edition
- Bazley, Nikolai, and Grove, **FINANCIAL ACCOUNTING: CONCEPTS AND USES**
- Bierman, Dyckman, and Hilton, **COST ACCOUNTING: CONCEPTS AND MANAGERIAL APPLICATIONS**
- Bryan, **PRINCIPLES OF ACCOUNTING PROBLEMS USING LOTUS 1-2-3**
- Diamond, Flamholtz, and Flamholtz, **FINANCIAL ACCOUNTING**, Second Edition
- Dominiak and Louderback, **MANAGERIAL ACCOUNTING**, Fifth Edition
- Evans, Taylor, and Holzmann, **INTERNATIONAL ACCOUNTING AND REPORTING**
- Flamholtz, Flamholtz, and Diamond, **PRINCIPLES OF ACCOUNTING**
- Flesher, Kreiser, and Flesher, **INTRODUCTION TO FINANCIAL ACCOUNTING**
- Gelinas, Oram, and Wiggins, **ACCOUNTING INFORMATION SYSTEMS**
- Gibson, **FINANCIAL STATEMENT ANALYSIS: USING FINANCIAL ACCOUNTING INFORMATION**, Fourth Edition
- Gibson and Frishkoff, **CASES IN FINANCIAL REPORTING**, Second Edition
- Hansen, **MANAGEMENT ACCOUNTING**
- Henke, **ACCOUNTING FOR NONPROFIT ORGANIZATIONS**, Fifth Edition
- Henke, **INTRODUCTION TO NONPROFIT ORGANIZATION ACCOUNTING**, Third Edition
- Hirsch, **ADVANCED MANAGEMENT ACCOUNTING**
- Hirsch and Louderback, **COST ACCOUNTING: ACCUMULATION, ANALYSIS, AND USE**, Second Edition
- KENT/BENTLEY JOURNAL OF ACCOUNTING AND COMPUTERS**, Volume V
- Marshall, Misiewicz, and Parker, **PROGRAMMED GUIDE TO TAX RESEARCH**, Fourth Edition
- Nash, **ACCOUNTING INFORMATION SYSTEMS**, Second Edition
- Nikolai and Bazley, **FINANCIAL ACCOUNTING, THIRD EDITION**
- Nikolai and Bazley, **INTERMEDIATE ACCOUNTING**, Fourth Edition
- Nikolai, Bazley, and Stallman, **PRINCIPLES OF ACCOUNTING**, Third Edition
- Ochi and Hughes, **ACCOUNTING WITH LOTUS 1-2-3**
- Pearson and Stiner, **A REVIEW OF THE ACCOUNTING CYCLE FOR THE IBM-PC**
- Porter and Perry, **EDP: CONTROLS AND AUDITING**, Fifth Edition
- Stiner and Pearson, **COST ACCOUNTING PROBLEMS FOR THE IBM-PC**
- Stiner and Pearson, **MANAGERIAL ACCOUNTING PROBLEMS FOR THE IBM-PC**
- Thomas and Henke, **AUDITING: THEORY AND PRACTICE**, Second Edition
- Thompson and Brady, **ESSENTIAL CPA LAW REVIEW**, Seventh Edition
- Verreault and Verreault, **COST ACCOUNTING APPLICATIONS AND EXTENSIONS USING LOTUS 1-2-3**, Second Edition
- Verreault and Verreault, **MANAGERIAL ACCOUNTING APPLICATIONS AND EXTENSIONS USING LOTUS 1-2-3**, Second Edition
- Weiss and Raun, **McGEE: A COMPUTERIZED ACCOUNTING INFORMATION SYSTEM**
- Wolk, Francis, and Tearney, **ACCOUNTING THEORY: A CONCEPTUAL AND INSTITUTIONAL APPROACH**, Second Edition
- Wolk, Gerber, and Porter, **MANAGEMENT ACCOUNTING: PLANNING AND CONTROL**

*To my wife, Jan, and my four children, Kenn, Neil, Ryan, and Makenzie.*

# P R E F A C E

This text is designed to introduce students to the fundamentals of management accounting. Study of the text assumes that students have been introduced to the basics of financial accounting. The emphasis is on managerial uses of accounting information.

Many of the students in business schools who are required to take a course in management accounting are not majors in the accounting field. For these students, it is often difficult to appreciate the value of the concepts being taught. This text attempts to overcome this attitude by introducing each chapter with a motivational scenario. Most (but not all) of these scenarios are based on real-world experiences and involve managers who are faced with some problem that requires the use of accounting information for its resolution. Seeing the potential usefulness of the material being studied should enhance the interest of nonaccounting majors in management accounting concepts.

Given the major changes that have taken place for many firms in the manufacturing environment, the choice of topical content became a major concern. There are some management accounting professors who feel that many, if not all, of the traditional management accounting concepts are obsolete and should no longer be taught. Although many of the conventional product-costing methods may indeed be outmoded for some manufacturing firms, it is my observation that this is not true for all manufacturing firms and certainly not true for all organizations. Nonetheless, the changes that are taking place are too important to be ignored. Students need to be aware of Just-in-Time manufacturing and its impact on management accounting, activity-based costing, quality costing, and other changes that are affecting the way management accounting is practiced.

To deal with the evolution of management accounting concepts, I have

included four chapters that cover the changes that are affecting management accounting. Specifically, three of these chapters deal with the impact of the new manufacturing environment on product costing, decision making, and planning and control. The fourth chapter deals with measuring and controlling quality costs.

Another area of contemporary interest in accounting is that of ethical behavior. Ethical lapses by many managers and accounting professionals have led to calls to increase the discussion of ethical behavior in the classroom. Because of its very nature, management accounting provides many excellent settings for addressing this topic. I discuss the role of ethics in the introductory chapter and introduce the code of ethics developed by the National Association of Accountants. I then provide a problem involving an ethical dilemma in each chapter of the text. This affords the instructor the opportunity to introduce value judgments in managerial accounting decisions.

I have tried to provide down-to-earth discussions of the concepts in each chapter and simple and numerous examples. The concepts are always cast in a real-world context to add credibility and interest to the material.

Finally, some mention of supplements needs to be made. The text is accompanied by a Test Bank, a Solutions Manual, an Instructor's Manual, and a set of problems with computer applications. Within the text itself, specific problems and exercises are targeted for computer applications. For convenience, these problems are identified with a diskette symbol.

## Acknowledgments

First and foremost, I would like to express my appreciation to the reviewers of the text. There were many comments and suggestions that were invaluable in developing the text. The use of real-world material, the organization of the text, the use of short cases, and revisions for clarity and readability are just a few of the improvements brought about by the following reviewers:

Richard Calvasina  
*University of West Florida*  
Edwin Caplan  
*University of New Mexico*  
Frank P. Daroca  
*Loyola Marymount University*  
Stephen J. Dempsey  
*University of Vermont*  
James M. Emig  
*Villanova University*  
Timothy Farmer  
*University of Wisconsin*  
Gerald Hoth  
*Weber State College*

Amy Lau  
*Oklahoma State University*  
Woody Liao  
*University of Houston*  
Leslie Loschen  
*Eastern New Mexico University*  
Richard E. McDermott  
*Brigham Young University*  
Maryanne M. Mowen  
*Oklahoma State University*  
Leslie Weisenfeld  
*Clarkson University*



I would also like to thank those individuals in industry (who prefer to remain anonymous) for material that allowed me to develop many of the introductory scenarios and some of the short cases at the end of each chapter. Add to this list the many students in my undergraduate cost classes (at Weber State College) who provided reports of real-world settings and management accounting practices. Many of these reports also served as source material for the scenarios and short cases. I appreciate their willingness to allow me to use this material.

I would also like to acknowledge the resources provided by the Willard Eccles Fellowship that I held while at Weber State College. These resources made it easier for me to produce the text. For example, some of the funds from the fellowship were used to hire graduate assistants to work the exercises and problems (special thanks to three graduate students: Daren Cottle, Rhonda Thompson, and Sondra Baron).

Permission has been given by the Institute of Certified Management Accountants (ICMA) and the National Association of Accountants (NAA) to use problem material and/or solutions from past Certificate in Management Accounting (CMA) Examinations. The National Association of Accountants has also given permission to reprint the ethical standards for management accountants. I appreciate the willingness of the ICMA and the NAA to provide this support.

---

# **Management Accounting**

---

# C O N T E N T S

► CHAPTER 1 Introduction: The Role, History, and Direction of Management Accounting	1
Accounting Information and Management	3
The Study of Accounting	3
Information Needs of Managers	3
The Management Process	4
Organizational Type	5
Management Accounting and Financial Accounting	5
The Management Accountant	7
The Controller	7
Certification	8
Management Accounting and Ethical Conduct	10
Ethical Behavior	11
Implications for Management Accounting	11
A Historical Perspective	12
The Absolute-Truth Approach	13
The Conditional-Truth Approach	13
The Costly-Truth Approach	13
The Behavioral Approach	14
Trends Impacting Management Accounting	14
Just-in-Time Manufacturing	15
Computer-Integrated Manufacturing	15
Advances in Information Technology	16

Deregulation in the Service Industry	16
Implications for Management Accounting	17
Summary	18
Key Terms	19
Appendix: Standard of Ethical Conduct for Management Accountants	19
Questions	21
Problems	22

---

## **P A R T 1 Cost Accumulation and Product Costing**

► CHAPTER 2 Cost Concepts and Terminology	27
Organizational Framework	29
Cost and Cost Classification	30
Functional Classification of Costs	31
Direct Manufacturing Costs	32
Indirect Manufacturing Costs	32
Nonmanufacturing Costs	33
Related Cost Concepts	34
Financial Statements and the Functional Classification	35
Cost of Goods Manufactured	36
Cost Flows	36
Comparison to Merchandising Organizations	38
Comparison to Service Organizations	39
Classification by Cost Behavior	41
Fixed Costs	42
Variable Costs	44
Mixed Costs	45
Income Statement: Classification by Cost Behavior	46
Summary	48
Key Terms	48
Review Problem	50
Questions	52
Exercises	53

Problems	57
Short Cases	62

► **CHAPTER 3 Job-Order Costing** 67

Two Issues: Cost Assignment and Cost Measurement	69
Importance of Unit Costs	69
Production of Unit Cost Information	70
Job-Order and Process Costing:	
Two Possible Assignment Systems	71
Actual Costing and Normal Costing:	
Two Cost Measurement Approaches	72
Overhead Application: A Normal Costing View	75
Predetermined Overhead Rates	75
Measures of Production Activity	75
Activity Level Choices	76
The Basic Concept of Overhead Application	77
Disposition of Overhead Variances	78
Job-Order Costing: General Description	80
Materials Requisitions	82
Job Time Tickets	83
Overhead Application	84
Unit Cost Calculation	84
Job-Order Costing: Specific Cost Flow Description	84
Accounting for Materials	85
Accounting for Direct Labor Cost	86
Accounting for Overhead	87
Accounting for Finished Goods	89
Accounting for Cost of Goods Sold	91
Accounting for Nonmanufacturing Costs	93
Single Versus Multiple Overhead Rates	95
Summary	97
Key Terms	98
Review Problem	99
Questions	101
Exercises	102
Problems	108
Short Cases	117

►	<b>CHAPTER 4 Process Costing</b>	<b>121</b>
	Choice of a Cost Accumulation Method	123
	Basic Characteristics of Process Costing	124
	Process Manufacturing	124
	Process Costing: Cost Flows	126
	Cost Accumulation: The Production Report	127
	Output Measurement: The Concept of Equivalent Units	127
	Accounting for Process Costs: Two Approaches	129
	Weighted Average Costing	130
	FIFO Costing	133
	Some Complications of Process Costing	134
	Nonuniform Application of Manufacturing Inputs	134
	Multiple Departments	138
	Summary	138
	Key Terms	139
	Review Problem	140
	Appendix A: Production Report: FIFO Costing	142
	Appendix B: Multiple Department Analysis	146
	Questions	147
	Exercises	148
	Problems	153
	Short Cases	160
►	<b>CHAPTER 5 Allocation: Service-Center Costs and Other Concepts</b>	<b>165</b>
	Objectives of Allocation	168
	Cost Allocation: Some Basic Guidelines	170
	Selection of Cost Allocation Bases: Causal Factors	171
	Allocation: Budgeted Versus Actual Costs	171
	Cost Behavior: Separate Allocation of Fixed and Variable Costs	172
	Methods of Allocating Service Department Costs	175
	The Direct Method of Allocation	176
	The Sequential Method of Allocation	177
	Departmental Overhead Rates and Product Costing	178

Summary	180
Key Terms	180
Review Problem	181
Appendix: The Reciprocal Method of Allocation	182
Questions	185
Exercises	186
Problems	189
Short Cases	195

► **CHAPTER 6 Product Costing and Cost Management:  
The New Manufacturing Environment 199**

The Limitations of Conventional Product Costing	201
Overhead Assignment: The Source of the Problem	202
Overhead Costing: A Single-Product Setting	203
Overhead Costing: Multiple-Product Setting with Volume-Related Cost Drivers	203
Why Volume-Related Cost Drivers Fail	207
Activity-Based Product Costing	208
First-Stage Procedure	208
Second-Stage Procedure	210
Comparison of Product Costs	211
The Choice of Cost Drivers	211
JIT Manufacturing and Product Costing	213
JIT Compared with Traditional Manufacturing	213
JIT and the Traceability of Overhead Costs	215
Product-Costing Accuracy and JIT	216
JIT and the Allocation of Service-Center Costs	218
JIT's Effect on Direct Labor Costs	219
JIT's Effect on Inventory Valuation	219
JIT's Effect on Job-Order Costing	220
Process Costing and JIT	220
A Broader View of Product Costs	221
Summary	221
Key Terms	222
Review Problem	223
Questions	225
Exercises	226

Problems	233
Short Cases	244

## PART 2 Managerial Decision Making



### CHAPTER 7 Variable Costing: A Useful Management Tool 251

#### Variable Costing and Absorption Costing: An Analysis and Comparison 253

Inventory Valuation	254
Income Statements: Analysis and Reconciliation	255
Production, Sales, and Income Relationships	257

#### Benefits of Variable Costing 261

Performance Evaluation of Managers	261
Segmented Reporting, Evaluation, and Decision Making	263
Planning and Control	267

#### Summary 268

#### Key Terms 269

#### Review Problem 269

#### Questions 273

#### Exercises 273

#### Problems 279

#### Short Case 289



### CHAPTER 8 Special Pricing Decisions and Cost Behavior 291

#### The Role of Cost Behavior in Special Pricing Decisions 293

Special Conditions and Special Prices	294
Incremental Costs, Cost Behavior, and Pricing	294

#### Cost Behavior Revisited 296

Variable Costs	296
Fixed Costs	300
Mixed Costs	303



**Methods for Decomposing Mixed Costs 304**

The Method of Judgment 305

The High-Low Method 308

The Method of Least Squares 309

Goodness of Fit 312

Multiple Regression 314

Summary 315

Key Terms 316

Review Problem 317

Questions 319

Exercises 320

Problems 324

Short Case 333

**CHAPTER 9 Cost-Volume-Profit Analysis:  
A Managerial Planning Tool 335**

Issues Addressed by Cost-Volume-Profit Analysis 337

Variable Costing Income: Basis of CVP Analysis 339

Single-Product Analysis: Units-Sold Approach 339

Sample Applications of the Units-Sold Approach 340

Single-Product Analysis: Sales-Revenue Approach 346

Sample Applications of the Sales-Revenue Approach 347

Comparison of the Two Approaches 348

Multiple-Product Analysis 349

The Unit-Sold Approach and Multiple Products 349

The Sales-Revenue Approach and

Multiple-Product Analysis 352

Graphical Representation of CVP Relationships 354

The Profit-Volume Graph 354

The Cost-Volume-Profit Graph 355

Additional Concepts 357

Margin of Safety 357

Operating Leverage 357

Limitations of CVP Analysis 359

Summary 360