

GLOBAL  
EDITION

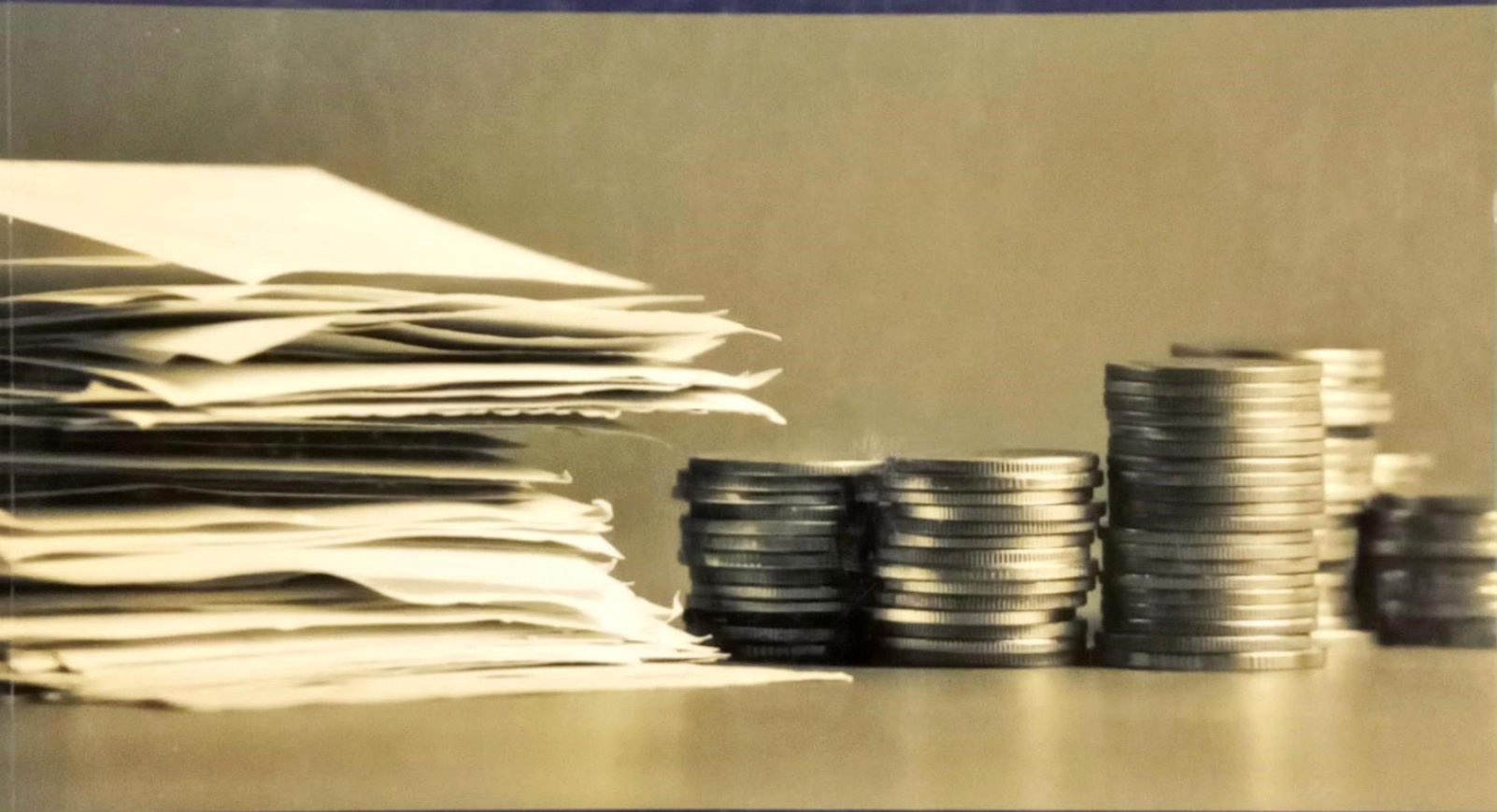


# Horngren's Cost Accounting

## *A Managerial Emphasis*

SIXTEENTH EDITION

Srikant M. Datar • Madhav V. Rajan



Pearson



# Horngren's Cost Accounting

## A MANAGERIAL EMPHASIS

Sixteenth Edition

Global Edition

**Srikant M. Datar**

Harvard University

**Madhav V. Rajan**

Stanford University



**Pearson**

Harlow, England • London • New York • Boston • San Francisco • Toronto • Sydney • Dubai • Singapore • Hong Kong  
Tokyo • Seoul • Taipei • New Delhi • Cape Town • Sao Paulo • Mexico City • Madrid • Amsterdam • Munich • Paris • Milan

**Vice President, Business Publishing:** Donna Battista  
**Director of Portfolio Management:** Adrienne D'Ambrosio  
**Senior Portfolio Manager:** Ellen Geary  
**Senior Acquisitions Editor, Global Edition:** Sandhya Ghoshal  
**Associate Project Editor, Global Edition:** Paromita Banerjee  
**Assistant Project Editor, Global Edition:** Arka Basu  
**Content Producer:** Christine Donovan  
**Vice President, Product Marketing:** Roxanne McCarley  
**Director of Strategic Marketing:** Brad Parkins  
**Strategic Marketing Manager:** Deborah Strickland  
**Product Marketer:** Tricia Murphy  
**Field Marketing Manager:** Natalie Wagner  
**Field Marketing Assistant:** Kristen Compton  
**Product Marketing Assistant:** Jessica Quazza  
**Vice President, Production and Digital Studio, Arts and Business:** Etain O'Dea  
**Director of Production, Business:** Jeff Holcomb  
**Managing Producer, Business:** Ashley Santora

**Content Producer, Global Edition:** Nitin Shankar  
**Senior Manufacturing Controller, Global Edition:** Trudy Kimber  
**Operations Specialist:** Carol Melville  
**Creative Director:** Blair Brown  
**Manager, Learning Tools:** Brian Surette  
**Content Developer, Learning Tools:** Sarah Peterson  
**Managing Producer, Digital Studio, Arts and Business:** Diane Lombardo  
**Digital Studio Producer:** Regina DaSilva  
**Digital Studio Producer:** Alana Coles  
**Digital Content Team Lead:** Noel Lotz  
**Digital Content Project Lead:** Martha LaChance  
**Media Production Manager, Global Edition:** Vikram Kumar  
**Full-Service Project Management and Composition:** Integra Software Services  
**Interior Design:** Integra Software Services  
**Cover Art:** weerapat wattanapichayakul/123RF®

Microsoft and/or its respective suppliers make no representations about the suitability of the information contained in the documents and related graphics published as part of the services for any purpose. All such documents and related graphics are provided "as is" without warranty of any kind. Microsoft and/or its respective suppliers hereby disclaim all warranties and conditions with regard to this information, including all warranties and conditions of merchantability, whether express, implied or statutory, fitness for a particular purpose, title and non-infringement. In no event shall Microsoft and/or its respective suppliers be liable for any special, indirect or consequential damages or any damages whatsoever resulting from loss of use, data or profits, whether in an action of contract, negligence or other tortious action, arising out of or in connection with the use or performance of information available from the services.

The documents and related graphics contained herein could include technical inaccuracies or typographical errors. Changes are periodically added to the information herein. Microsoft and/or its respective suppliers may make improvements and/or changes in the product(s) and/or the program(s) described herein at any time. Partial screen shots may be viewed in full within the software version specified.

Microsoft® and Windows® are registered trademarks of the Microsoft Corporation in the U.S.A. and other countries. This book is not sponsored or endorsed by or affiliated with the Microsoft Corporation.

Acknowledgments of third-party content appear on the appropriate page within the text.

Pearson Education Limited  
Edinburgh Gate  
Harlow  
Essex CM20 2JE  
England

and Associated Companies throughout the world

Visit us on the World Wide Web at:  
[www.pearsonglobaleditions.com](http://www.pearsonglobaleditions.com)

© Pearson Education Limited 2018

The rights of Srikant M. Datar and Madhav V. Rajan to be identified as the authors of this work have been asserted by them in accordance with the Copyright, Designs and Patents Act 1988.

*Authorized adaptation from the United States edition, entitled Horngren's Cost Accounting: A Managerial Emphasis, 16th Edition, ISBN 978-0-13-447558-5 by Srikant M. Datar and Madhav V. Rajan, published by Pearson Education © 2018.*

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without either the prior written permission of the publisher or a license permitting restricted copying in the United Kingdom issued by the Copyright Licensing Agency Ltd, Saffron House, 6-10 Kirby Street, London EC1N 8TS.

All trademarks used herein are the property of their respective owners. The use of any trademark in this text does not vest in the author or publisher any trademark ownership rights in such trademarks, nor does the use of such trademarks imply any affiliation with or endorsement of this book by such owners.

ISBN 10: 1-292-21154-7

ISBN 13: 978-1-292-21154-1

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

10 9 8 7 6 5  
2019

Typeset in Sabon MT Pro by Integra-PDY IN  
Printed in Malaysia (CTP-VVP)



# Brief Contents

- 1** The Manager and Management Accounting 21
- 2** An Introduction to Cost Terms and Purposes 48
- 3** Cost–Volume–Profit Analysis 86
- 4** Job Costing 127
- 5** Activity-Based Costing and Activity-Based Management 172
- 6** Master Budget and Responsibility Accounting 217
- 7** Flexible Budgets, Direct-Cost Variances, and Management Control 269
- 8** Flexible Budgets, Overhead Cost Variances, and Management Control 308
- 9** Inventory Costing and Capacity Analysis 349
- 10** Determining How Costs Behave 392
- 11** Decision Making and Relevant Information 446
- 12** Strategy, Balanced Scorecard, and Strategic Profitability Analysis 497
- 13** Pricing Decisions and Cost Management 544
- 14** Cost Allocation, Customer-Profitability Analysis, and Sales-Variance Analysis 579
- 15** Allocation of Support-Department Costs, Common Costs, and Revenues 621
- 16** Cost Allocation: Joint Products and Byproducts 663
- 17** Process Costing 695
- 18** Spoilage, Rework, and Scrap 738
- 19** Balanced Scorecard: Quality and Time 768
- 20** Inventory Management, Just-in-Time, and Simplified Costing Methods 798
- 21** Capital Budgeting and Cost Analysis 838
- 22** Management Control Systems, Transfer Pricing, and Multinational Considerations 876
- 23** Performance Measurement, Compensation, and Multinational Considerations 911

# Contents

## 1 The Manager and Management Accounting 21

### For Coca-Cola, Smaller Sizes Mean Bigger Profits

Financial Accounting, Management Accounting, and Cost Accounting 22

Strategic Decisions and the Management Accountant 23

Value-Chain and Supply-Chain Analysis and Key Success Factors 24

Value-Chain Analysis 24

Supply-Chain Analysis 26

Key Success Factors 27

### Concepts in Action: Trader Joe's Recipe for Cost Leadership

Decision Making, Planning, and Control: The Five-Step Decision-Making Process 29

Key Management Accounting Guidelines 32

Cost-Benefit Approach 32

Behavioral and Technical Considerations 33

Different Costs for Different Purposes 33

Organization Structure and the Management Accountant 33

Line and Staff Relationships 33

The Chief Financial Officer and the Controller 34

Management Accounting Beyond the Numbers 35

Professional Ethics 36

Institutional Support 36

Typical Ethical Challenges 37

*Problem for Self-Study 39 | Decision Points 39 |*

*Terms to Learn 40 | Assignment Material 40 |*

*Questions 40 | Multiple-Choice Questions 41 |*

*Exercises 41 | Problems 43*

## 2 An Introduction to Cost Terms and Purposes 48

### High Fixed Costs Bankrupt Quiksilver

Costs and Cost Terminology 49

Direct Costs and Indirect Costs 49

Cost Allocation Challenges 50

Factors Affecting Direct/Indirect Cost Classifications 51

Cost-Behavior Patterns: Variable Costs and Fixed Costs 52

### Concepts in Action: Zipcar Helps Twitter Reduce Fixed Costs

Cost Drivers 54

Relevant Range 55

Relationships Between Types of Costs 56

Total Costs and Unit Costs 56

Unit Costs 56

Use Unit Costs Cautiously 57

Business Sectors, Types of Inventory, Inventoriable Costs, and Period Costs 58

Manufacturing-, Merchandising-, and Service-Sector Companies 58

Types of Inventory 58

Commonly Used Classifications of Manufacturing Costs 59

Inventoriable Costs 59

Period Costs 59

Illustrating the Flow of Inventoriable Costs and Period Costs 60

Manufacturing-Sector Example 60

Recap of Inventoriable Costs and Period Costs 64

Prime Costs and Conversion Costs 65

Measuring Costs Requires Judgment 66

Measuring Labor Costs 66

Overtime Premium and Idle Time 66

Benefits of Defining Accounting Terms 67

Different Meanings of Product Costs 68

A Framework for Cost Accounting and Cost Management 69

Calculating the Cost of Products, Services, and Other Cost Objects 70

Obtaining Information for Planning and Control and Performance Evaluation 70

Analyzing the Relevant Information for Making Decisions 70

*Problem for Self-Study 71 | Decision Points 73 |*

*Terms to Learn 74 | Assignment Material 74 |*

*Questions 74 | Multiple-Choice Questions 75 |*

*Exercises 76 | Problems 80*

## 3 Cost-Volume-Profit Analysis 86

### How Coachella Tunes Up the Sweet Sound of Profits

Essentials of CVP Analysis 87

Contribution Margin 88

Expressing CVP Relationships 90

Cost-Volume-Profit Assumptions 93

Breakeven Point and Target Operating Income 93

Breakeven Point 93

Target Operating Income 94

Income Taxes and Target Net Income 96

Using CVP Analysis for Decision Making 98



- Decision to Advertise 98
- Decision to Reduce the Selling Price 98
- Determining Target Prices 99

**Concepts in Action: Cost–Volume–Profit Analysis Makes Subway's \$5 Foot-Long Sandwiches a Success But Innovation Challenges Loom**

- Sensitivity Analysis and Margin of Safety 100
- Cost Planning and CVP 102
  - Alternative Fixed-Cost/Variable-Cost Structures 102
  - Operating Leverage 103
- Effects of Sales Mix on Income 105
- CVP Analysis in Service and Not-for-Profit Organizations 107
- Contribution Margin Versus Gross Margin 108

*Problem for Self-Study 109 | Decision Points 110*

**APPENDIX: Decision Models and Uncertainty 111**

*Terms to Learn 114 | Assignment Material 115 | Questions 115 | Multiple-Choice Questions 115 | Exercises 116 | Problems 120*

## 4 Job Costing 127

**Job Costing and the World's Tallest Building**

- Building-Block Concepts of Costing Systems 128
- Job-Costing and Process-Costing Systems 129
- Job Costing: Evaluation and Implementation 130
  - Time Period Used to Compute Indirect-Cost Rates 131
  - Normal Costing 133
- General Approach to Job Costing Using Normal Costing 133

**Concepts in Action: The Job-Costing "Game Plan" at AT&T Stadium**

- The Role of Technology 138
- Actual Costing 138
- A Normal Job-Costing System in Manufacturing 140
  - General Ledger 141
  - Explanations of Transactions 141
  - Subsidiary Ledgers 144
  - Materials Records by Type of Material 144
  - Labor Records by Employee 145
  - Manufacturing Department Overhead Records by Month 146
  - Work-in-Process Inventory Records by Jobs 146
  - Finished Goods Inventory Records by Jobs 147
  - Other Subsidiary Records 147
  - Nonmanufacturing Costs and Job Costing 147
- Budgeted Indirect Costs and End-of-Accounting-Year Adjustments 148
- Underallocated and Overallocated Indirect Costs 148
- Adjusted Allocation-Rate Approach 149
- Proration Approach 149

- Write-off to Cost of Goods Sold Approach 151
- Choosing Among Approaches 152
- Variations from Normal Costing: A Service-Sector Example 153

*Problem for Self-Study 155 | Decision Points 157 | Terms to Learn 158 | Assignment Material 158 | Questions 158 | Multiple-Choice Questions 159 | Exercises 160 | Problems 166*

## 5 Activity-Based Costing and Activity-Based Management 172

**General Motors and Activity-Based Costing**

- Broad Averaging and Its Consequences 173
  - Undercosting and Overcosting 173
  - Product-Cost Cross-Subsidization 174
- Simple Costing System at Plastim Corporation 174
  - Design, Manufacturing, and Distribution Processes 174
- Simple Costing System Using a Single Indirect-Cost Pool 175
- Applying the Five-Step Decision-Making Process at Plastim 177
- Refining A Costing System 178
  - Reasons for Refining a Costing System 179
  - Guidelines for Refining a Costing System 179
- Activity-Based Costing Systems 180
  - Plastim's ABC System 180
- Cost Hierarchies 182
- Implementing Activity-Based Costing 184
  - Implementing ABC at Plastim 184
  - Comparing Alternative Costing Systems 189
- Considerations in Implementing Activity-Based Costing Systems 190
  - Benefits and Costs of Activity-Based Costing Systems 190
  - Behavioral Issues in Implementing Activity-Based Costing Systems 191
- Activity-Based Management 192
  - Pricing and Product-Mix Decisions 192
  - Cost Reduction and Process Improvement Decisions 192
  - Design Decisions 193
  - Planning and Managing Activities 194
- Activity-Based Costing and Department Costing Systems 194
  - ABC in Service and Merchandising Companies 195

**Concepts in Action: Mayo Clinic Uses Time-Driven Activity-Based Costing to Reduce Costs and Improve Care**

*Problem for Self-Study 196 | Decision Points 199 | Terms to Learn 200 | Assignment Material 200 | Questions 200 | Multiple-Choice Questions 201 | Exercises 201 | Problems 208*



## 6 Master Budget and Responsibility Accounting 217

### "Scrimping" at the Ritz: Master Budgets

Budgets and the Budgeting Cycle	218
Strategic Plans and Operating Plans	218
Budgeting Cycle and Master Budget	219
Advantages and Challenges of Implementing Budgets	220
Promoting Coordination and Communication	220
Providing a Framework for Judging Performance and Facilitating Learning	220
Motivating Managers and Other Employees	221
Challenges in Administering Budgets	221
Developing an Operating Budget	222
Time Coverage of Budgets	222
Steps in Preparing an Operating Budget	222
Financial Planning Models and Sensitivity Analysis	235

### Concepts in Action: 24 Hour Fitness and Internet-Based Budgeting

Budgeting and Responsibility Accounting	237
Organization Structure and Responsibility	237
Feedback	238
Responsibility and Controllability	239
Human Aspects of Budgeting	240
Budgetary Slack	240
Stretch Targets	241
Kaizen Budgeting	242
Budgeting for Reducing Carbon Emissions	243
Budgeting in Multinational Companies	243
Problem for Self-Study	244
Decision Points	245

### APPENDIX: The Cash Budget 246

Terms to Learn	252
Assignment Material	252
Questions	252
Multiple-Choice Questions	253
Exercises	253
Problems	258

## 7 Flexible Budgets, Direct-Cost Variances, and Management Control 269

### SingaDeli Bakery and Incentive Controls

Static Budgets and Variances	270
The Use of Variances	270
Static Budgets and Static-Budget Variances	271
Flexible Budgets	273
Flexible-Budget Variances and Sales-Volume Variances	274
Sales-Volume Variances	274
Flexible-Budget Variances	275
Standard Costs for Variance Analysis	276
Obtaining Budgeted Input Prices and Budgeted Input Quantities	277

Price Variances and Efficiency Variances for Direct-Cost Inputs	278
Price Variances	279
Efficiency Variance	279
Journal Entries Using Standard Costs	282
Implementing Standard Costing	284
Management's Use of Variances	284
Multiple Causes of Variances	284

### Concepts in Action: Can Chipotle Wrap Up Its Materials-Cost Variance Increases?

When to Investigate Variances	285
Using Variances for Performance Measurement	286
Organization Learning	286
Continuous Improvement	287
Financial and Nonfinancial Performance Measures	287
Benchmarking and Variance Analysis	287
Problem for Self-Study	289
Decision Points	290

### APPENDIX: Mix and Yield Variances for Substitutable Inputs 291

Terms to Learn	295
Assignment Material	295
Questions	295
Multiple-Choice Questions	295
Exercises	296
Problems	300

## 8 Flexible Budgets, Overhead Cost Variances, and Management Control 308

### Tesla Motors Gigafactory

Planning of Variable and Fixed Overhead Costs	309
Planning Variable Overhead Costs	309
Planning Fixed Overhead Costs	309
Standard Costing at Webb Company	310
Developing Budgeted Variable Overhead Rates	310
Developing Budgeted Fixed Overhead Rates	311
Variable Overhead Cost Variances	312
Flexible-Budget Analysis	312
Variable Overhead Efficiency Variance	313
Variable Overhead Spending Variance	314
Journal Entries for Variable Overhead Costs and Variances	316
Fixed Overhead Cost Variances	317
Production-Volume Variance	318
Interpreting the Production-Volume Variance	319
Journal Entries for Fixed Overhead Costs and Variances	320

### Concepts in Action: Variance Analysis and Standard Costing Help Sandoz Manage Its Overhead Costs

Integrated Analysis of Overhead Cost Variances	323
4-Variance Analysis	323
Combined Variance Analysis	323
Production-Volume Variance and Sales-Volume Variance	325
Variance Analysis and Activity-Based Costing	327



Flexible Budget and Variance Analysis for Direct Materials-Handling Labor Costs	328
Flexible Budget and Variance Analysis for Fixed Setup Overhead Costs	330
Overhead Variances in Nonmanufacturing Settings	332
Financial and Nonfinancial Performance Measures	333
<i>Problem for Self-Study</i>	334
<i>Decision Points</i>	336
<i>Terms to Learn</i>	337
<i>Assignment Material</i>	337
<i>Questions</i>	337
<i>Multiple-Choice Questions</i>	337
<i>Exercises</i>	339
<i>Problems</i>	343

## 9 Inventory Costing and Capacity Analysis 349

### Lean Manufacturing Helps Boeing Work Through Its Backlog

Variable and Absorption Costing	350
Variable Costing	350
Absorption Costing	350
Comparing Variable and Absorption Costing	350
Variable vs. Absorption Costing: Operating Income and Income Statements	352
Comparing Income Statements for One Year	352
Comparing Income Statements for Multiple Years	354
Variable Costing and the Effect of Sales and Production on Operating Income	357
Absorption Costing and Performance Measurement	358
Undesirable Buildup of Inventories	359
Proposals for Revising Performance Evaluation	360
Comparing Inventory Costing Methods	361
Throughput Costing	361
A Comparison of Alternative Inventory-Costing Methods	362
Denominator-Level Capacity Concepts and Fixed-Cost Capacity Analysis	363
Absorption Costing and Alternative Denominator-Level Capacity Concepts	364
Effect on Budgeted Fixed Manufacturing Cost Rate	365
Choosing a Capacity Level	366
Product Costing and Capacity Management	366
Pricing Decisions and the Downward Demand Spiral	367
<b>Concepts in Action: Can ESPN Avoid the Cord-Cutting "Death Spiral"?</b>	
Performance Evaluation	369
Financial Reporting	369
Tax Requirements	372
Planning and Control of Capacity Costs	372
Difficulties in Forecasting Chosen Denominator-Level Concept	372
Difficulties in Forecasting Fixed Manufacturing Costs	373

Nonmanufacturing Costs	373
Activity-Based Costing	374

*Problem for Self-Study* 374 | *Decision Points* 376

### APPENDIX: Breakeven Points in Variable Costing and Absorption Costing 377

<i>Terms to Learn</i>	379
<i>Assignment Material</i>	379
<i>Questions</i>	379
<i>Multiple-Choice Questions</i>	379
<i>Exercises</i>	381
<i>Problems</i>	385

## 10 Determining How Costs Behave 392

### UPS Uses "Big Data" to Understand Its Costs While Helping the Environment

Basic Assumptions and Examples of Cost Functions	393
Basic Assumptions	393
Linear Cost Functions	393
Review of Cost Classification	395
Identifying Cost Drivers	396
The Cause-and-Effect Criterion	396
Cost Drivers and the Decision-Making Process	397
Cost Estimation Methods	397
Industrial Engineering Method	398
Conference Method	398
Account Analysis Method	398
Quantitative Analysis Method	399
Estimating a Cost Function Using Quantitative Analysis	400
High-Low Method	402
Regression Analysis Method	404
Evaluating and Choosing Cost Drivers	405
Cost Drivers and Activity-Based Costing	408
Nonlinear Cost Functions	409
Learning Curves	410
Cumulative Average-Time Learning Model	411
Incremental Unit-Time Learning Model	412
Incorporating Learning-Curve Effects into Prices and Standards	413
<b>Concepts in Action: Does Joint Strike Fighter Production Have a Learning Curve?</b>	
Data Collection and Adjustment Issues	415
<i>Problem for Self-Study</i>	417
<i>Decision Points</i>	419
<b>APPENDIX: Regression Analysis</b>	420
<i>Terms to Learn</i>	429
<i>Assignment Material</i>	429
<i>Questions</i>	429
<i>Multiple-Choice Questions</i>	430
<i>Exercises</i>	430
<i>Problems</i>	436

## 11 Decision Making and Relevant Information 446

### Relevant Costs and Broadway Shows

Information and the Decision Process	447
The Concept of Relevance	447
Relevant Costs and Relevant Revenues	447



Qualitative and Quantitative Relevant Information	449
One-Time-Only Special Orders	450
Potential Problems in Relevant-Cost Analysis	453
Short-Run Pricing Decisions	453
Insourcing-Versus-Outsourcing and Make-or-Buy Decisions	454
Outsourcing and Idle Facilities	454
Strategic and Qualitative Factors	456
International Outsourcing	456
The Total Alternatives Approach	457
<b>Concepts in Action: Starbucks Brews Up Domestic Production</b>	
The Opportunity-Cost Approach	458
Carrying Costs of Inventory	461
Product-Mix Decisions with Capacity Constraints	462
Bottlenecks, Theory of Constraints, and Throughput-Margin Analysis	464
Customer Profitability and Relevant Costs	467
Relevant-Revenue and Relevant-Cost Analysis of Dropping a Customer	468
Relevant-Revenue and Relevant-Cost Analysis of Adding a Customer	470
Relevant-Revenue and Relevant-Cost Analysis of Closing or Adding Branch Offices or Business Divisions	470
Irrelevance of Past Costs and Equipment-Replacement Decisions	471
Decisions and Performance Evaluation	473
<i>Problem for Self-Study</i>	475   <i>Decision Points</i>

#### APPENDIX: Linear Programming 478

<i>Terms to Learn</i>	481   <i>Assignment Material</i>	481
<i>Questions</i>	481   <i>Multiple-Choice Questions</i>	482
<i>Exercises</i>	483   <i>Problems</i>	488

## 12 Strategy, Balanced Scorecard, and Strategic Profitability Analysis 497

### Barclays Turns to the Balanced Scorecard

What Is Strategy?	498
Building Internal Capabilities: Quality Improvement and Reengineering at Chipset	500
Strategy Implementation and the Balanced Scorecard	501
The Balanced Scorecard	501
Strategy Maps and the Balanced Scorecard	502
Implementing a Balanced Scorecard	508
Different Strategies Lead to Different Scorecards	509
Environmental and Social Performance and the Balanced Scorecard	509
Features of a Good Balanced Scorecard	513
Pitfalls in Implementing a Balanced Scorecard	514
Evaluating the Success of Strategy and Implementation	514

Strategic Analysis of Operating Income	515
Growth Component of Change in Operating Income	517
Price-Recovery Component of Change in Operating Income	518
Productivity Component of Change in Operating Income	519
Further Analysis of Growth, Price-Recovery, and Productivity Components	521

### Concepts in Action: Operating Income Analysis Reveals Strategic Challenges at Best Buy

Applying the Five-Step Decision-Making Framework to Strategy	524
Downsizing and the Management of Processing Capacity	524
Engineered and Discretionary Costs	524
Identifying Unused Capacity for Engineered and Discretionary Overhead Costs	525
Managing Unused Capacity	525

<i>Problem for Self-Study</i>	526   <i>Decision Points</i>	530
-------------------------------	------------------------------	-----

#### APPENDIX: Productivity Measurement 531

<i>Terms to Learn</i>	534   <i>Assignment Material</i>	534
<i>Questions</i>	534   <i>Multiple-Choice Questions</i>	534
<i>Exercises</i>	535   <i>Problems</i>	537

## 13 Pricing Decisions and Cost Management 544

### Extreme Pricing and Cost Management at IKEA

Major Factors that Affect Pricing Decisions	545
Customers	545
Competitors	545
Costs	545
Weighing Customers, Competitors, and Costs	545
Costing and Pricing for the Long Run	546
Calculating Product Costs for Long-Run Pricing Decisions	547
Alternative Long-Run Pricing Approaches	548
Market-Based Approach: Target Costing for Target Pricing	550
Understanding Customers' Perceived Value	550
Competitor Analysis	551
Implementing Target Pricing and Target Costing	551

### Concepts in Action: H&M Uses Target Pricing to Bring Fast Fashion to Stores Worldwide

Value Engineering, Cost Incurrence, and Locked-in Costs	553
Value-Chain Analysis and Cross-Functional Teams	553
Achieving the Target Cost per Unit for Provalue	554
Cost-Plus Pricing	557
Cost-Plus Target Rate of Return on Investment	557
Alternative Cost-Plus Methods	558
Cost-Plus Pricing and Target Pricing	559



Life-Cycle Product Budgeting and Costing	560
Life-Cycle Budgeting and Pricing	
Decisions	560
Managing Environmental and Sustainability	
Costs	562
Customer Life-Cycle Costing	562
Non-Cost Factors in Pricing Decisions	563
Price Discrimination	563
Peak-Load Pricing	563
International Pricing	563
Antitrust Laws and Pricing Decisions	564
The Supreme Court has not specified the “appropriate measure of costs.”	564

*Problem for Self-Study* 565 | *Decision Points* 567 | *Terms to Learn* 568 | *Assignment Material* 569 | *Questions* 569 | *Multiple-Choice Questions* 569 | *Exercises* 569 | *Problems* 573

## 14 Cost Allocation, Customer-Profitability Analysis, and Sales-Variance Analysis 579

### Delta Flies from Frequent Flyers to Big Spenders

Customer-Profitability Analysis	580
Customer-Revenue Analysis	580
Customer-Cost Analysis	581
Customer-Level Costs	582
Customer-Profitability Profiles	585
Presenting Profitability Analysis	586

### Concepts in Action: Amazon Prime and Customer Profitability

Using the Five-Step Decision-Making Process to Manage Customer Profitability	588
Cost-Hierarchy-Based Operating Income Statement	589
Criteria to Guide Cost Allocations	591
Fully Allocated Customer Profitability	593
Implementing Corporate and Division Cost Allocations	594
Issues in Allocating Corporate Costs to Divisions and Customers	597
Using Fully Allocated Costs for Decision Making	598
Sales Variances	599
Static-Budget Variance	600
Flexible-Budget Variance and Sales-Volume Variance	600
Sales-Mix Variance	601
Sales-Quantity Variance	602
Market-Share and Market-Size Variances	603
Market-Share Variance	603
Market-Size Variance	603

*Problem for Self-Study* 605 | *Decision Points* 607 | *Terms to Learn* 608 | *Assignment Material* 608 | *Questions* 608 | *Multiple-Choice Questions* 609 | *Exercises* 609 | *Problems* 614

## 15 Allocation of Support-Department Costs, Common Costs, and Revenues 621

### Cost Allocation and “Smart Grid” Energy Infrastructure

Allocating Support Department Costs Using the Single-Rate and Dual-Rate Methods	622
Single-Rate and Dual-Rate Methods	622
Allocation Based on the Demand for (or Usage of) Materials-Handling Services	623
Allocation Based on the Supply of Capacity	624
Advantages and Disadvantages of Single-Rate Method	626
Advantages and Disadvantages of Dual-Rate Method	626
Budgeted Versus Actual Costs and the Choice of Allocation Base	627
Budgeted Versus Actual Rates	627
Budgeted Versus Actual Usage	628
Fixed-Cost Allocation Based on Budgeted Rates and Budgeted Usage	628
Fixed-Cost Allocation Based on Budgeted Rates and Actual Usage	628
Allocating Budgeted Fixed Costs Based on Actual Usage	629

Allocating Costs of Multiple Support Departments	630
Direct Method	633
Step-Down Method	634
Reciprocal Method	635
Overview of Methods	639
Calculating the Cost of Job WPP 298	639

Allocating Common Costs	641
Stand-Alone Cost-Allocation Method	641
Incremental Cost-Allocation Method	642
Cost Allocations and Contract Disputes	643
Bundled Products and Revenue Allocation Methods	644
Bundling and Revenue Allocation	644

### Concepts in Action: Contract Disputes over Reimbursable Costs with the U.S. Government

Stand-Alone Revenue-Allocation Method	646
Incremental Revenue-Allocation Method	647

*Problem for Self-Study* 649 | *Decision Points* 652 | *Terms to Learn* 653 | *Assignment Material* 653 | *Questions* 653 | *Exercises* 653 | *Problems* 657

## 16 Cost Allocation: Joint Products and Byproducts 663

### Joint-Cost Allocation and the Wounded Warrior Project

Joint-Cost Basics	664
Allocating Joint Costs	665
Approaches to Allocating Joint Costs	666



**Concepts in Action: U.S.-South Africa Trade Dispute Over Joint-Cost Allocation**

- Sales Value at Splitoff Method 668
- Physical-Measure Method 668
- Net Realizable Value Method 670
- Constant Gross-Margin Percentage NRV Method 671
- Choosing an Allocation Method 674
  - Not Allocating Joint Costs 675
- Why Joint Costs Are Irrelevant for Decision Making 675
  - Sell-or-Process-Further Decisions 675
  - Decision Making and Performance Evaluation 676
  - Pricing Decisions 676
- Accounting for Byproducts 677
  - Production Method: Byproducts Recognized at Time Production Is Completed 678
  - Sales Method: Byproducts Recognized at Time of Sale 679

*Problem for Self-Study* 680 | *Decision Points* 683 |  
*Terms to Learn* 683 | *Assignment Material* 683 |  
*Questions* 683 | *Multiple-Choice Questions* 684 |  
*Exercises* 685 | *Problems* 690

**17 Process Costing 695****Haynes Suffers as Nickel Prices Drop**

- Illustrating Process Costing 696
- Case 1: Process Costing with No Beginning or Ending Work-in-Process Inventory 697
- Case 2: Process Costing with Zero Beginning and Some Ending Work-in-Process Inventory 698
  - Summarizing the Physical Units and Equivalent Units (Steps 1 and 2) 699
  - Calculating Product Costs (Steps 3, 4, and 5) 701
  - Journal Entries 702
- Case 3: Process Costing with Some Beginning and Some Ending Work-in-Process Inventory 704
  - Weighted-Average Method 704
  - First-In, First-Out Method 707
  - Comparing the Weighted-Average and FIFO Methods 711
- Transferred-In Costs in Process Costing 712
  - Transferred-In Costs and the Weighted-Average Method 713
  - Transferred-In Costs and the FIFO Method 715
  - Points to Remember About Transferred-In Costs 717
- Hybrid Costing Systems 717
  - Overview of Operation-Costing Systems 717

**Concepts in Action: Hybrid Costing for Under Armour 3D Printed Shoes**

- Illustrating an Operation-Costing System 719
- Journal Entries 720

*Problem for Self-Study* 721 | *Decision Points* 723

**APPENDIX: Standard-Costing Method of Process Costing 724**

*Terms to Learn* 728 | *Assignment Material* 728 |  
*Questions* 728 | *Multiple-Choice Questions* 728 |  
*Exercises* 730 | *Problems* 733

**18 Spoilage, Rework, and Scrap 738****Airbag Rework Sinks Honda's Record Year**

- Defining Spoilage, Rework, and Scrap 739
- Two Types of Spoilage 739
  - Normal Spoilage 740
  - Abnormal Spoilage 740
- Spoilage in Process Costing Using Weighted-Average and FIFO 740
  - Count All Spoilage 741
  - Five-Step Procedure for Process Costing with Spoilage 742
  - Weighted-Average Method and Spoilage 743
  - FIFO Method and Spoilage 746
  - Journal Entries 747
- Inspection Points and Allocating Costs of Normal Spoilage 747
- Job Costing and Spoilage 750
- Job Costing and Rework 751
- Accounting for Scrap 753
  - Recognizing Scrap at the Time of Its Sale 753
  - Recognizing Scrap at the Time of Its Production 754

**Concepts in Action: Nestlé's Journey to Zero Waste for Disposal**

*Problem for Self-Study* 756 | *Decision Points* 756

**APPENDIX: Standard-Costing Method and Spoilage 757**

*Terms to Learn* 759 | *Assignment Material* 759 |  
*Questions* 759 | *Multiple-Choice Questions* 760 |  
*Exercises* 761 | *Problems* 764

**19 Balanced Scorecard: Quality and Time 768****Toyota Plans Changes After Millions of Defective Cars Are Recalled**

- Quality as a Competitive Tool 769
  - The Financial Perspective: The Costs of Quality 770
- Using Nonfinancial Measures to Evaluate and Improve Quality 773
  - The Customer Perspective: Nonfinancial Measures of Customer Satisfaction 773
  - The Internal-Business-Process Perspective: Analyzing Quality Problems and Improving Quality 774
  - The Learning-and-Growth Perspective: Quality Improvements 777



- Weighing the Costs and Benefits of Improving Quality 777
- Evaluating a Company's Quality Performance 779
- Time as a Competitive Tool 780
- Customer-Response Time and On-Time Performance 780
- Bottlenecks and Time Drivers 781

### **Concepts in Action: Netflix Works to Overcome Internet Bottlenecks**

- Relevant Revenues and Costs of Delays 784
- Balanced Scorecard and Time-Based Measures 786
- Problem for Self-Study* 787 | *Decision Points* 788 | *Terms to Learn* 789 | *Assignment Material* 789 | *Questions* 789 | *Multiple-Choice Questions* 789 | *Exercises* 790 | *Problems* 793

## **20 Inventory Management, Just-in-Time, and Simplified Costing Methods 798**

### **Walmart Uses Big Data to Better Manage Its Inventory**

- Inventory Management in Retail Organizations 799
- Costs Associated with Goods for Sale 799
- The Economic-Order-Quantity Decision Model 800
- When to Order, Assuming Certainty 802
- Safety Stock 803
- Estimating Inventory-Related Relevant Costs and Their Effects 805
- Cost of a Prediction Error 805
- Conflicts Between the EOQ Decision Model and Managers' Performance Evaluation 806
- Just-in-Time Purchasing 807
- JIT Purchasing and EOQ Model Parameters 807
- Relevant Costs of JIT Purchasing 807
- Supplier Evaluation and Relevant Costs of Quality and Timely Deliveries 809
- JIT Purchasing, Planning and Control, and Supply-Chain Analysis 811
- Inventory Management, MRP, and JIT Production 812
- Materials Requirements Planning 812
- Just-in-Time (JIT) Production 812
- Features of JIT Production Systems 812
- Costs and Benefits of JIT Production 813

### **Concepts in Action: Just-in-Time Live-Concert Recordings**

- JIT in Service Industries 814
- Enterprise Resource Planning (ERP) Systems 814
- Performance Measures and Control in JIT Production 815
- Effect of JIT Systems on Product Costing 815
- Backflush Costing 816
- Simplified Normal or Standard-Costing Systems 816

- Special Considerations in Backflush Costing 822
- Lean Accounting 824

- Problems for Self-Study* 827 | *Decision Points* 828 | *Terms to Learn* 829 | *Assignment Material* 829 | *Questions* 829 | *Multiple-Choice Questions* 830 | *Exercises* 830 | *Problems* 833

## **21 Capital Budgeting and Cost Analysis 838**

### **Changing NPV Calculations Shake Up Solar Financing**

- Stages of Capital Budgeting 839

### **Concepts in Action: Capital Budgeting for Sustainability at Johnson & Johnson**

- Discounted Cash Flow 842
- Net Present Value Method 843
- Internal Rate-of-Return Method 844
- Comparing the Net Present Value and Internal Rate-of-Return Methods 846
- Sensitivity Analysis 846
- Payback Method 847
- Uniform Cash Flows 847
- Nonuniform Cash Flows 848
- Accrual Accounting Rate-of-Return Method 850
- Relevant Cash Flows in Discounted Cash Flow Analysis 851
- Relevant After-Tax Flows 852
- Categories of Cash Flows 853
- Project Management and Performance Evaluation 857
- Post-Investment Audits 857
- Performance Evaluation 858
- Strategic Considerations in Capital Budgeting 858
- Investment in Research and Development 858
- Customer Value and Capital Budgeting 859

- Problem for Self-Study* 859 | *Decision Points* 862

### **APPENDIX: Capital Budgeting and Inflation 863**

- Terms to Learn* 865 | *Assignment Material* 866 | *Questions* 866 | *Multiple-Choice Questions* 866 | *Exercises* 867 | *Problems* 871 | *Answers to Exercises in Compound Interest (Exercise 21-21)* 875

## **22 Management Control Systems, Transfer Pricing, and Multinational Considerations 876**

### **Google's U.K. Tax Settlement**

- Management Control Systems 877
- Formal and Informal Systems 877
- Effective Management Control 878
- Decentralization 878
- Benefits of Decentralization 879
- Costs of Decentralization 879
- Comparing Benefits and Costs 880
- Decentralization in Multinational Companies 881
- Choices About Responsibility Centers 881



Transfer Pricing	882
Criteria for Evaluating Transfer Prices	882
Calculating Transfer Prices	883
An Illustration of Transfer Pricing	883
Market-Based Transfer Prices	886
Perfectly-Competitive-Market Case	886
Distress Prices	886
Imperfect Competition	887
Cost-Based Transfer Prices	887
Full-Cost Bases	887
Variable-Cost Bases	889
Hybrid Transfer Prices	890
Prorating the Difference Between Maximum and Minimum Transfer Prices	890
Negotiated Pricing	891
Dual Pricing	891
A General Guideline for Transfer-Pricing Situations	892
How Multinationals Use Transfer Pricing to Minimize Their Taxes	894
<b>Concepts in Action: E.U. Accuses Starbucks and Netherlands of Unfair Tax Deal</b>	
Transfer Prices Designed for Multiple Objectives	897
<i>Problem for Self-Study</i>	898
<i>Decision Points</i>	900
<i>Terms to Learn</i>	901
<i>Assignment Material</i>	901
<i>Questions</i>	901
<i>Exercises</i>	901
<i>Problems</i>	905

## 23 Performance Measurement, Compensation, and Multinational Considerations 911

### Executive Compensation at Viacom

Financial and Nonfinancial Performance Measures	912
Accounting-Based Measures for Business Units	913
Return on Investment	914
Residual Income	915
Economic Value Added	917
Return on Sales	918
Comparing Performance Measures	919
Choosing the Details of the Performance Measures	919
Alternative Time Horizons	919
Alternative Definitions of Investment	920
Alternative Asset Measurements	920

Target Levels of Performance and Feedback	923
Choosing Target Levels of Performance	923
Choosing the Timing of Feedback	924
Performance Measurement in Multinational Companies	924
Calculating a Foreign Division's ROI in the Foreign Currency	925
Calculating the Foreign Division's ROI in U.S. Dollars	926
Distinguishing the Performance of Managers from the Performance of Their Subunits	927
The Basic Tradeoff: Creating Incentives Versus Imposing Risk	927
Intensity of Incentives and Financial and Nonfinancial Measurements	928
<b>Concepts in Action: Performance Measurement at Unilever</b>	
Benchmarks and Relative Performance Evaluation	929
Performance Measures at the Individual Activity Level	929
Executive Performance Measures and Compensation	930
Strategy and Levers of Control	931
Boundary Systems	932
Belief Systems	933
Interactive Control Systems	933
<i>Problem for Self-Study</i>	933
<i>Decision Points</i>	935
<i>Terms to Learn</i>	936
<i>Assignment Material</i>	936
<i>Questions</i>	936
<i>Multiple-Choice Questions</i>	936
<i>Exercises</i>	937
<i>Problems</i>	941

### Appendix A: Notes on Compound Interest and Interest Tables 947

### Appendix B: Recommended Readings—available online [www.pearsonglobaleditions.com/Horngren](http://www.pearsonglobaleditions.com/Horngren)

### Appendix C: Cost Accounting in Professional Examination—available online [www.pearsonglobaleditions.com/Horngren](http://www.pearsonglobaleditions.com/Horngren)

### Glossary 955

### Index 966