

清华会计学系列英文版教材

PEARSON

会计信息系统

Accounting Information Systems Eleventh Edition

[美] 乔治·H. 博德纳 (George H. Bodnar) 著
威廉·S. 霍普伍德 (William S. Hopwood)

第11版

清华大学出版社

清华会计学系列英文版教材

会计信息系统

Accounting Information Systems Eleventh Edition

[美] 乔治·H. 博德纳 (George H. Bodnar) 著
威廉·S. 霍普伍德 (William S. Hopwood)

第11版

清华大学出版社
北京

北京市版权局著作权合同登记号 图字: 01-2013-7321

Original edition, entitled **ACCOUNTING INFORMATION SYSTEMS**, 11th edition, 9780132871938 by **George H. Bodnar** and **William S. Hopwood**, published by Pearson Education, Inc., publishing as **Prentice Hall**, copyright © 2013.

All Rights Reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage retrieval system, without permission from Pearson Education, Inc.

China edition published by **PEARSON EDUCATION ASIA LTD.**, and **TSINGHUA UNIVERSITY PRESS**. Copyright © 2013.

This edition is manufactured in the People's Republic of China, and is authorized for sale only in the People's Republic of China excluding Hong Kong, Macao and Taiwan.

For sale and distribution in the People's Republic of China exclusively (except Taiwan, Hong Kong SAR and Macao SAR).

仅限于中华人民共和国境内(不包括中国香港、澳门特别行政区和中国台湾地区)销售发行。

本书封面贴有 **Pearson Education**(培生教育出版集团)激光防伪标签,无标签者不得销售。

版权所有,侵权必究。侵权举报电话: 010-62782989 13701121933

图书在版编目(CIP)数据

会计信息系统: 第11版 = Accounting information systems, 11e: 英文/(美)博德纳(Bodnar, G. H.), (美)霍普伍德(Hopwood, W. S.)著. --北京: 清华大学出版社, 2013

(清华会计学系列英文版教材)

ISBN 978-7-302-34336-3

I. ①会… II. ①博… ②霍… III. ①会计信息—高等学校—教材—英文 IV. ①F232

中国版本图书馆 CIP 数据核字(2013)第 255032 号

责任编辑: 江 娅

封面设计: 常雪影

责任印制: 刘海龙

出版发行: 清华大学出版社

网 址: <http://www.tup.com.cn>, <http://www.wqbook.com>

地 址: 北京清华大学学研大厦 A 座

邮 编: 100084

社 总 机: 010-62770175

邮 购: 010-62786544

投稿与读者服务: 010-62776969, c-service@tup.tsinghua.edu.cn

质量反馈: 010-62772015, zhiliang@tup.tsinghua.edu.cn

印 装 者: 清华大学印刷厂

经 销: 全国新华书店

开 本: 203mm×260mm

印 张: 34

版 次: 2013 年 12 月第 1 版

印 次: 2013 年 12 月第 1 次印刷

印 数: 1~3000

定 价: 59.80 元

产品编号: 056128-01

出 版 说 明

为了适应经济全球化的发展趋势,满足国内广大读者了解、学习和借鉴国外先进的管理经验和掌握经济理论前沿动态的需要,清华大学出版社与国外著名出版公司合作影印出版一系列英文版经济管理方面的图书。我们所选择的图书,基本上已是再版多次、在国外深受欢迎并被广泛采用的优秀教材,绝大部分是该领域中较具权威性的经典之作。

由于原作者所处国家的政治、经济和文化背景等与我国不同,对书中所持观点,敬请广大读者在阅读过程中注意加以分析和鉴别。

我们期望这套影印书的出版对我国经济科学的发展能有所帮助,对我国经济管理专业的教学能有所促进。

欢迎广大读者给我们提出宝贵的意见和建议,也欢迎有关的专业人士向我们推荐您所接触到的国外优秀图书。

清华大学出版社

世纪之交，中国与世界的发展呈现最显著的两大趋势——以网络为代表的信息技术的突飞猛进，以及经济全球化的激烈挑战。无论是无远弗界的因特网，还是日益密切的政治、经济、文化等方面的国际合作，都标示着 21 世纪的中国是一个更加开放的中国，也面临着一个更加开放的世界。

教育，特别是管理教育总是扮演着学习与合作的先行者的角色。改革开放以来，尤其是 20 世纪 90 年代之后，为了探寻中国国情与国际上一切优秀的管理教育思想、方法和手段的完美结合，为了更好地培养高层次的“面向国际市场竞争、具备国际经营头脑”的管理者，我国的教育机构与美国、欧洲、澳洲以及亚洲一些国家和地区的大量的著名管理学院和顶尖跨国企业建立了长期密切的合作关系。以清华大学经济管理学院为例，2000 年，学院顾问委员会成立，并于 10 月举行了第一次会议，2001 年 4 月又举行了第二次会议。这个顾问委员会包括了世界上最大的一些跨国公司和中国几家顶尖企业的最高领导人，其阵容之大、层次之高，超过了世界上任何一所商学院。在这样高层次、多样化、重实效的管理教育国际合作中，教师和学生与国外的交流机会大幅度增加，越来越深刻地融入全球性的教育、文化和思想观念的时代变革中，我们的管理教育工作者和经济管理学习者，更加真切地体验到这个世界正发生着深刻的变化，也更主动地探寻和把握着世界经济发展和跨国企业运作的脉搏。

我国管理教育的发展，闭关锁国、闭门造车是绝对不行的，必须同国际接轨，按照国际一流的水准来要求自己。正如朱镕基同志在清华大学经济管理学院成立十周年时所发的贺信中指出的那样：“建设有中国特色的社会主义，需要一大批掌握市场经济的一般规律，熟悉其运行规则，而又了解中国企业实情的经济管理人才。清华大学经济管理学院就要敢于借鉴、引进世界上一切优秀的经济管理学院的教学内容、方法和手段，结合中国的国情，办成世界第一流的经管学院。”作为达到世界一流的一个重要基础，朱镕基同志多次建议清华的 MBA 教育要加强英语教学。我体会，这不仅因为英语是当今世界交往中重要的语言工具，是连接中国与世界的重要桥梁和媒介，而且更是中国经济管理人才参与国际竞争，加强国际合作，实现中国企业的国际战略的基石。推动和实行英文教学并不是目的，真正的目的在于培养学生——这些未来的企业家——能够具备同国际竞争对手、合作伙伴沟通和对抗的能力。按照这一要求，清华大学经济管理学院正在不断推动英语教学的步伐，使得英语不仅是一门需要学习的核心课程，而且渗透到各门专业课程的学习当中。

课堂讲授之外，课前课后的大量英文原版著作、案例的阅读对于提高学生的英文水平也是非常关键的。这不仅是积累相当的专业词汇的重要手段，而且是对学习

者思维方式的有效训练。

我们知道,就阅读而言,学习和借鉴国外先进的管理经验和掌握经济理论动态,或是阅读翻译作品,或是阅读原著。前者属于间接阅读,后者属于直接阅读。直接阅读取决于读者的外文阅读能力,有较高外语水平的读者当然喜欢直接阅读原著,这样不仅可以避免因译者的疏忽或水平所限而造成的纰漏,同时也可以尽享原作者思想的真实表达。而对于那些有一定外语基础,但又不能完全独立阅读国外原著的读者来说,外文的阅读能力是需要加强培养和训练的,尤其是专业外语的阅读能力更是如此。如果一个人永远不接触专业外版图书,他在获得国外学术信息方面就永远会比别人差半年甚至一年的时间,他就会在无形中减弱自己的竞争能力。因此,我们认为,有一定外语基础的读者,都应该尝试一下阅读外文原版,只要努力并坚持,就一定能过了这道关,到那时就能体验到直接阅读的妙处了。

在掌握大量术语的同时,我们更看重读者在阅读英文原版著作时对于西方管理者或研究者的思维方式的学习和体会。我认为,原汁原味的世界级大师富有特色的表达方式背后,反映了思维习惯,反映了思想精髓,反映了文化特征,也反映了战略偏好。知己知彼,对于跨文化的管理思想、方法的学习,一定要熟悉这些思想、方法所孕育、成长的文化土壤,这样,有朝一日才能真正“具备国际战略头脑”。

以往,普通读者购买和阅读英文原版还有一个书价的障碍。一本外版书少则几十美元,多则上百美元,一般读者只能望书兴叹。随着全球经济合作步伐的加快,目前在出版行业有了一种新的合作出版的方式,即外文影印版,其价格几乎与国内同类图书持平。这样一来,读者可以不必再为书价发愁。清华大学出版社这些年在这方面一直以独特的优势领先于同行。早在1997年,清华大学出版社敢为人先,在国内最早推出一批优秀商学英文版教材,规模宏大,在企业界和管理教育界引起不小的轰动,更使国内莘莘学子受益良多。

为了配合清华大学经济管理学院推动英文授课的急需,也为了向全国更多的MBA试点院校和更多的经济管理学院的教师和学生提供学习上的支持,清华大学出版社再次隆重推出与世界著名出版集团合作的英文原版影印商学教科书,也使广大工商界人士、经济管理类学生享用到最新最好质优价廉的国际教材。

祝愿我国的管理教育事业在社会各界的大力支持和关心下不断发展、日进日新;祝愿我国的经济建设在不断涌现的大批高层次的面向国际市场竞争、具备国际经营头脑的管理者的勉力经营下早日中兴。

赵纯均 教授

清华大学经济管理学院

Preface

The eleventh edition of *Accounting Information Systems* continues to stress electronic commerce, database management, and systems development, all applied within the context of business processes, transaction cycles, and internal control. Detailed presentation of business processes and internal control is central to the topical organization. The business process chapters are traditionally oriented in presentation but at times rely on SAP™ ERP to extend the presentation to contemporary information systems. However, these chapters do not require the instructor to possess technical expertise in SAP™ ERP. The detailed presentation of internal controls in these chapters is consistent with all technological incarnations of accounting information systems.

The text contains an extensive CPA examination problem collection pertaining to business processes and internal controls, with complete answers and explanations in The Instructor's Resource and Solutions Manual. Our extensive CPA problem collection is drawn from the same pool of CPA examination questions that continue to serve as the cornerstone of the coverage of internal control provided by professional CPA Examination Review courses. The text also contains an assortment of CMA exam and CIA exam questions.

The textbook's core coverage continues to include business processes, transaction cycles, and internal controls. These topics have been central to this textbook since its original publication in 1980. The passage of the Sarbanes-Oxley Act is a testament to the continuing importance of these topics. An understanding of business processes is fundamental to contemporary auditing, and professional and legal considerations relating to an organization's internal control processes. Every business process is subject to loss exposures. Management should develop detailed control objectives for each business process. Such control objectives provide a basis for analysis and the risk-based audit of an organization's internal control processes as well as a basis for managing the loss exposures that are associated with an organization's dependence on information systems.

The eleventh edition presents "successive refinement" of the topical additions that were new in the tenth edition. These included discussion of various information systems reference models, enterprise architecture, Business Process Modeling Notation (BPMN), international standards for information security, integration of BPMN into our business process chapters, and an in-depth discussion of COBIT. Chapter 3 "eBusiness and eCommerce" has been streamlined to eliminate unnecessary technical details. All chapters have been edited to improve clarity of presentation and readability.

The eleventh edition features an entirely new chapter titled "Fraud Examination and Fraud Management." This chapter complements our presentation of internal controls and business processes by providing a vehicle to observe the effects of inadequate internal controls. The discussion of fraud investigations provides a step-by-step analysis of the processes required to prove that fraud has occurred. The objective is to teach students how to detect fraud, to conduct fraud investigations, and to appreciate that internal control, like the proverbial ounce of prevention, is worth a pound of cure. The chapter's discussion of the variety of methods used by employees to commit fraud reinforces the textbook's presentation of internal controls by providing scenarios in which the student can appreciate the value of specific controls in preventing specific types of fraud.

Learning Aids

Each chapter contains the following instructional aids:

- Learning Objectives
- Cases in Point in Text Boxes
- Glossary
- Annotated Webliography
- Chapter Quiz
- Review Problem

- Review Questions
- Discussion Questions and Problems
- Web Research Assignments

New to the eleventh edition is “List of Acronyms” that provides a quick reference to the many acronyms used in the text. The List is on pages xx to xxi of the Preface.

The Instructor’s Resource and Solutions Manual

The Instructor’s Resource and Solutions Manual is a comprehensive resource that includes teaching tips, chapter outlines that provide a base for planning lectures, as well as solutions/suggested solutions for review questions, discussion questions and problems, and Web research assignments. It also includes transparency masters derived from selected textbook figures.

The eleventh edition contains an extensive collection of multiple-choice questions from professional examinations. The majority of these questions are from CPA examinations. The Instructor’s Resource and Solutions Manual contains the Official Answer to these questions. However, the Official Answers were published without any explanation as to “why” the indicated answers are “correct.” Usually, the correctness of the answer will be evident. However, this may not be the case for at least a few of these questions.

The textbook’s collection of multiple-choice questions from professional examination is one of its strongest pedagogical features. These questions pertain to the most important control concepts in the textbook, and are an excellent vehicle for stimulating classroom discussion. Accordingly, the authors have prepared an Addendum, “Authors’ Discussion of Solutions to Multiple-Choice Professional Examination Questions,” which provides a detailed discussion/explanation of each stem for each question. This material was prepared to facilitate the instructor’s use of these questions in the classroom.

Test Item File

This Test Item File contains over 1,500 questions, including multiple-choice, true/false, and essay. Each question is followed by the correct answer, page reference, AACSB category, and difficulty rating. The Test Item File is available for download by visiting www.pearsonhighered.com/irc.

Testgen Test Management Software

Pearson Education’s test-generating software is available from www.pearsonhighered.com/irc. The software is PC/MAC compatible and preloaded with all of the Test Item File questions. You can manually or randomly view test questions, and drag and drop to create a test. You can add or modify test-bank questions as needed.

Learning Management Systems

Our TestGens are converted for use in BlackBoard and WebCT. These conversions can be found on the Instructor’s Resource Center. Conversions to Moodle, D2L, or Angel can be requested through your local Pearson sales representative.

PowerPoint Presentations

PowerPoint presentations are available for each chapter of the text. This resource allows instructors to offer a more interactive presentation using colorful graphics, outlines of chapter material, additional examples, and visual explanations of difficult topics. Instructors have the flexibility to add slides and/or modify the existing slides to meet the course needs.

Acknowledgments

The authors wish to acknowledge the helpful comments of the following reviewers of the tenth and eleventh editions:

Bruce Bradford	Fairfield University
Dr. Linda Bressler, C.I.A., C.F.E.	University of Houston-Downtown
Janet B. Butler	Texas State University-San Marcos
Robert W. Duron, Ph.D, CPA	Husson University
Rong Huang	City University of New York-Baruch College
Venkataraman Iyer	The University of North Carolina at Greensboro
Grace F. Johnson	Marietta College
Dr. Matthew J. Mize	Indiana Wesleyan University
Joseph M. Ragan	Saint Joseph's University
Laura K. Rickett	Cleveland State University
Dr. Janice Warner	Georgian Court University
Monica L. McElhaney, CPA, CMA, MS-MIS	Associate Professor of Accountancy, Bellevue University, Nebraska
Doris Duncan, Ph.D.	California State University, East Bay

G. H. B.

W. S. H.

Student Files

To download files referenced in the text, please visit www.pearsonhighered.com/bodnar.

List of Acronyms

ABC	activity-based costing	EFT	electronic funds transfer
ACFE	Association of Certified Fraud Examiners	EIS	executive information system
ACID	atomicity, consistency, isolation, and durability	EOQ	economic order quantity
AICPA	American Institute of Certified Public Accountants	E-R	entity-relationship
AIS	accounting information system	ERM	enterprise risk management
ANSI	American National Standards Institute	ERP	enterprise resource planning
API	applications programming interface	ES	expert system
BPEL	Web Services Business Process Execution Languages	ESB	enterprise service bus
BPMN	Business Process Modeling Notation	EUC	end-user computing
CADD	computer-aided design and drafting	FCPA	Federal Foreign Corrupt Practices Act of 1977
CAM	computer-aided manufacturing	FMS	flexible manufacturing system
CASE	computer-aided software engineering	FTP	file transfer protocol
CEO	chief executive officer	GAAP	Generally Accepted Accounting Principles
CFE	certified fraud examiner	GAS	generalized audit software
CIA	certified internal auditor	HIPO	hierarchical plus input-process-output
CIA	confidentiality, integrity, and availability	HR	human resources
CIM	computer-integrated manufacturing	HTML	hypertext markup language
CIO	chief information officer	I/O	input/output
CMA	certified management accountant	IDE	integrated development environment
COBIT	Control Objectives for Information and related Technology	IP	Internet protocol
COSO	Committee of Sponsoring Organizations of the Treadway Commission	IPO	input process output
CPA	certified public accountant	ISACA	Information Systems Audit and Control Association
CPM	critical path method	ISAM	indexed-sequential access method
CRM	customer relation management	ISMS	information security management system
CSO	chief security officer	ISO	International Organization for Standardization
DASD	direct-access storage device	ISP	Internet service provider
DBA	database administrator	IT	information technology
DBMS	database management system	ITF	integrated test facility
DDL	data description language	JIT	just-in-time
DFD	data flow diagram	MDA	Model Driven Architecture
DML	data manipulation language	MIS	management information system
DNS	domain name server	MRP	materials requirements planning
DoS	denial-of-service	MRP II	materials requirements planning II
DP	data processing	OASIS	Organization for the Advancement of Structured Information Standards
DQL	data query language	OLAP	online analytical processing
DSS	decision support system	OLRS	online, real-time system
EA	enterprise architecture	OMG	Object Management Group
EAS	enterprise application suite	OMT	object-oriented modeling technique
ebXML	ebusiness XML	OO	object-oriented
EDI	electronic data interchange	ORM	Osterwalder Reference model
EDP	electronic data processing	PC	personal computer
		PCAOB	Public Company Accounting Oversight Board

PERT	program evaluation and review technique	SEC	Security and Exchanges Commission
PIN	personal identification number	SOA	service-oriented architecture
POS	point-of-sale	SOX	Sarbanes–Oxley Act
QBE	query by example	SPICE	Software Process Improvement and Capability DETERmination
RAD	rapid application development	SQL	Structured Query Language
REA	resources-events-agents	TQM	total quality management
RFID	radio frequency identification	TQP	total quality performance
RUP	rational unified process	UML	Unified Modeling Language
SaaP	software as a platform	UPC	universal product code
SaaS	software as a service	WS-BPEL	Web Services Business Process Execution Languages
SAP	SAP Aktiengesellschaft, Systems, Applications, and Products in Data Processing	WSDL	Web Services Description Language
SCM	supply chain management	XBRL	Extensible Business Reporting Language
		XML	Extensible Markup Language

简 明 目 录

第一部分 会计信息系统介绍	1
第 1 章 会计信息系统：概述	1
第 2 章 系统方法与文档编制	35
第 3 章 电子业务与电子商务	80
第 4 章 交易处理和内部控制程序	103
第 5 章 欺诈审查与欺诈管理	150
第 6 章 信息安全	187
第二部分 业务流程	227
第 7 章 电子数据处理系统	227
第 8 章 收入循环流程	265
第 9 章 采购与人力资源业务流程	305
第 10 章 生产业务流程	349
第三部分 系统开发	381
第 11 章 系统规划、分析与设计	381
第 12 章 系统项目的管理、实施、运行与控制	419
第四部分 现代信息系统技术	441
第 13 章 数据管理概念	441
第 14 章 审计信息技术	482

Contents

Preface xxi

List of Acronyms xxiv

PART I Introduction to Accounting Information Systems 1

Chapter 1 Accounting Information Systems: An Overview 1

Accounting Information Systems and Business Organizations 1

Information and Decisions 1

Users of Accounting Information 1

Characteristics of Information 2

Information Systems 3

Data Processing 3

Management Information Systems 4

Decision Support Systems 4

Expert Systems 4

Executive Information Systems 4

Accounting Information Systems 4

Accounting Information Systems and Application Architecture 5

Evolution of Applications Architecture 5

Enterprise Resource Planning (ERP) 6

Business Processes 8

Business Process Reference Models 8

The ERP Functional Model 9

The Value Chain Model 9

The Supply Chain Model 10

The Operations Process Model 10

The Transaction Cycle Model 10

Internal Control Process 12

Elements of Internal Control Process 12

Segregation of Accounting Functions 13

Internal Audit Function 14

Accounting and Information Technology 15

The Information System Function 15

Organizational Location 15

Functional Specializations 16

End-User Computing 17

Cloud Computing 17

Quick-Response Technology 19

Lean Manufacturing 20

Just-in-Time 20

Web Commerce 21

Electronic Data Interchange 21

Extensible Business Reporting Language 21

Electronic Payment Systems 22

The Accountant and Systems Development 23

The Nature of Systems Development 23

Business Process Blueprinting 24

Behavioral Considerations in Systems Development 25

Green IT: Designing for Sustainability 25

Energy Usage 25

E-Waste 26

Summary 26 • Glossary 26 • Webliography 28 • Chapter Quiz 28 • Review

Questions 29 • Discussion Questions and Problems 29 • Web Research

Assignments 33 • Answers to Chapter Quiz 34

Chapter 2 Systems Techniques and Documentation 35**Users of Systems Techniques 35**

Use of Systems Techniques in Auditing 35

Internal Control Evaluation 35

Compliance Testing 36

Working Papers 36

Use of Systems Techniques in Systems

Development 36

Systems Analysis 36

Systems Design 36

Systems Implementation 37

Use of Systems Techniques by Sarbanes–Oxley Act

Compliance Participants 37

Systems Techniques 38

Flowcharting Symbols 38

Symbol Use in Flowcharting 41

IPO and HIPO Charts 42

Systems and Program Flowcharts 43

Logical Data Flow Diagrams 43

Logical Data Flow Diagrams and Structured

Analysis 44

Analytic, Document, and Forms Distribution Flowcharts 46

Analytic Flowcharting Illustration 48

Planning the Flowchart 48

Symbol Selection 48

System Analysis 48

Drawing the Flowchart 49

Sandwich Rule 50

Using the Connector Symbol 50

Entity-Column Relations 50

Unified Modeling Language™ (UML®) 52

Business Process Diagrams 54

Narrative Techniques 60

Resource Utilization Analysis 60

Work Measurement 61

Work Distribution Analysis 62

Decision Analysis Techniques 62

Branching and Decision Tables 62

Matrix Methods 64

Software for Systems Techniques 64

Microsoft Office® Applications 65

Computer-Aided Software Engineering 65

UML Modeling Tools 65

BPMN Modeling Tools 65

Summary 65 • Glossary 67 • Webliography 67 • Chapter Quiz 68 • Review

Problem 68 • Review Questions 69 • Discussion Questions and Problems 69 •

Web Research Assignments 79 • Answers to Chapter Quiz 79

Chapter 3 eBusiness and eCommerce 80

Introduction: Electronic Business and Electronic Commerce 80

- The Internet 80
- Client and Servers 81
- Types of Servers 81

eBusiness and Enterprise Architecture 83

- The Business Architecture 84
- The Data Architecture 85
 - Databases 85
 - The Corporate Information Factory 86
- The Applications Architecture 87
 - ERP and EAS Architectures 88
 - Service-Oriented Architecture 88
 - Benefits of SOA 89
 - Middleware 89
- The Technical Architecture 90

Enterprise Architecture Frameworks 91

- Business Process Frameworks and Reference Models 91
 - Value Chain Frameworks 91
 - Supply Chain Frameworks 92
- eBusiness Architectures 92

Electronic Commerce Technologies 93

- Electronic Payment Systems 93
 - Digital Cash 93
 - Virtual Cash 93
 - Virtual Cash in Electronic Cards 93
- The Internet Store 94

Trust in eCommerce: Privacy, Business Practices, and Transaction Integrity 95

Summary 96 • Glossary 96 • Webliography 98 • Chapter Quiz 98 • Review Questions 99 • Discussion Questions and Problems 99 • Web Research Assignments 102 • Answers to Chapter Quiz 102

Chapter 4 Transaction Processing and the Internal Control Process 103

The Necessity for Controls 103

- Enterprise Risk Management 103
- Controls and Exposures 104
- Common Exposures 104
 - Excessive Costs 104
 - Deficient Revenues 105
 - Loss of Assets 105
 - Inaccurate Accounting 105
 - Business Interruption 105
 - Statutory Sanctions 105
 - Competitive Disadvantage 105
 - Fraud and Embezzlement 105
- Fraud and White-Collar Crime 105
 - Forensic Accounting 107
 - Seriousness of Fraud 107
- Control Objectives and Transaction Cycles 107

Components of the Internal Control Process 108

- External Influences Concerning an Entity and Internal Control 109
 - The Sarbanes-Oxley Act 110
- Compliance with Sox Section 404 111

The Impact of the Business Environment on Internal Control 113**Control Environment 113**

- Integrity and Ethical Values 113
- Commitment to Competence 115
- Management Philosophy and Operating Style 115
- Organizational Structure 116
- Functions of the Board of Directors and Its Committees 116
- Manner of Assigning Authority and Responsibility 117
- Human Resource Policies and Practices 118

Risk Assessment 119**Control Activities 119**

- Segregation of Duties 119
- Adequate Documents and Records 120
- Restricted Access to Assets 120
- Independent Accountability Checks and Reviews of Performance 121
- Information Processing Controls 121

Information and Communication 122

- Documentation of the Accounting System 122
- Double-Entry System of Accounting 122
- Communication 123

Monitoring 123

- A Model for Monitoring 124

Transaction Processing Controls 124**General Controls 124**

- The Plan of Data Processing Organization and Operation 125
- General Operating Procedures 125
- Equipment Control Features 126
- Equipment and Data-Access Controls 126

Application Controls 126

- Input Controls 126
- Processing Controls 128
- Output Controls 129

Preventative, Detective, and Corrective Controls 130**Communicating the Objectives of Internal Control 130****Goals and Behavior Patterns 131****Analysis of Internal Control Processes 133****Analytic Techniques 133****Internal Control and Compliance in Small Business and Small Public Companies 135****Illustration of an Internal Control Analysis 137**

Summary 138 • Glossary 138 • Webliography 140 • Chapter Quiz 141 •

Review Problem 141 • Solution to Review Problem 142 • Review

Questions 142 • Discussion Questions and Problems 142 • Web Research

Assignments 149 • Answers to Chapter Quiz 149

Chapter 5 Fraud Examination and Fraud Management 150**The Fraud Management Process 150****Fraud Prevention 151****Fraud Detection 151**

- Optimal Fraud Detection Systems 153

Fraud Investigation Process 153

- The Fraud Engagement Process 154

The Evidence Collection Process 156

- Physical, Document, and Observation Evidence 158

The Fraud Report	163
Loss Recovery and Litigation	163
Expert Testimony	164
Fraud Schemes	165
Financial Statement Fraud	165
Who Commits Financial Statement Fraud and Why	166
How to Prevent Financial Statement Fraud	167
Employee Fraud	167
Revenue Cycle Fraud	168
Expenditure Cycle Fraud	169
Production Cycle Fraud	171
Vendor Fraud	171
Computer Forensics	171
Evidence Gathering with Computers	172
Preliminary Steps	172
Collecting Computer-Related Evidence	172
Pull the Plug	173
Don't Pull the Plug	173
Device Processing	174
Content Investigation	174
Deleted or Corrupted Data Recovery	174
Location Analysis	174
Password Cracking	176
Surreptitious User Monitoring and Reporting	176
Summary	177 • Glossary 178 • Webliography 178 • Chapter Quiz 179 •
Review Problem	179 • Solution to Review Problem 179 • Review Questions 180 •
Discussion Questions and Problems	180 • Web Research Assignments 186 •
Answers to Chapter Quiz	186

Chapter 6 Information Security 187

An Overview of Information Security 187

The Information Security Management System Life Cycle	188
International Standards for Information Security	188
The Information Security System in the Organization	189
Analyzing Vulnerabilities and Threats	189

Vulnerabilities and Threats 190

The Seriousness of Information Systems Fraud	190
Individuals Posing a Threat to the Information System	191
Computer and Information Systems Personnel	191
Users	192
Intruders and Hackers	192
Methods of Attack by Information Systems Personnel and Users	198
Input Manipulation	198
Program Alteration	199
Direct File Alteration	199
Data Theft	199
Sabotage	200
Misappropriation or Theft of Information Resources	200

The Information Security Management System 201

The Control Environment	201
Management Philosophy and Operating Style	201
Organizational Structure	201