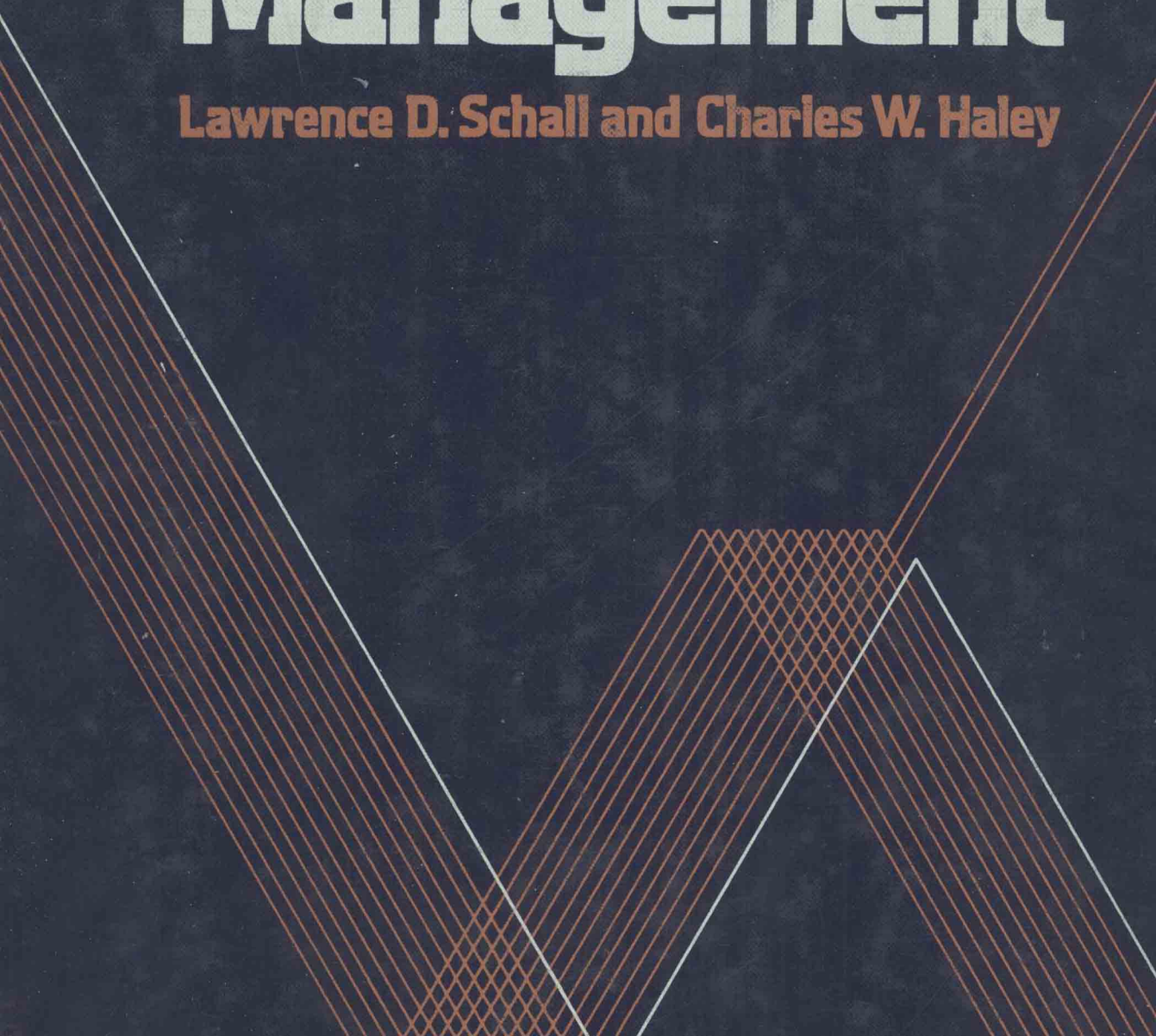


Introduction to Financial Management

Lawrence D. Schall and Charles W. Haley



Introduction to Financial Management

Second Edition

Lawrence D. Schall / Charles W. Haley

Professors of Finance, University of Washington

McGraw-Hill Book Company

New York St. Louis San Francisco Auckland Bogotá
Hamburg Johannesburg London Madrid Mexico Montreal
New Delhi Panama Paris São Paulo Singapore Sydney
Tokyo Toronto

INTRODUCTION TO FINANCIAL MANAGEMENT

Copyright © 1980, 1977 by McGraw-Hill, Inc. All rights reserved. Printed in the United States of America. 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 the prior written permission of the publisher.

3 4 5 6 7 8 9 0 DODO 8 9 8 7 6 5 4 3 2 1

This book was set in Times Roman by Progressive Typographers. The editors were Bonnie E. Lieberman, Marjorie Singer, and Elisa Adams; the design was done by Caliber Design Planning; the production supervisor was Dominick Petrellese. New drawings were done by J&R Services, Inc. R. R. Donnelley & Sons Company was printer and binder.

Library of Congress Cataloging in Publication Data

Schall, Lawrence D

Introduction to financial management.

(McGraw-Hill series in finance)

Bibliography: p.

Includes index.

1. Corporations—Finance. I. Haley, Charles W.,
joint author. II. Title.

HG4011.S33 1980 658.1'5 79-21761

ISBN 0-07-055100-6

Introduction to Financial Management

McGRAW-HILL SERIES IN FINANCE

Professor Charles A. D'Ambrosio
University of Washington
Consulting Editor

Christy and Clendenin Introduction to Investments
Coates Investment Strategy
Committe Managerial Finance for the Seventies
Curran Principles of Financial Management
Dobrovolsky The Economics of Corporation Finance
Edmister Financial Institutions: Markets and Management
Francis Investments: Analysis and Management
Haley and Schall The Theory of Financial Decisions
Hastings and Mietus Personal Finance
Henning, Pigott, and Scott International Financial Management
Lang and Gillespie Strategy for Personal Finance
Robinson and Wrightsman Financial Markets: The Accumulation and Allocation of Wealth
Schall and Haley Introduction to Financial Management
Sharpe Portfolio Theory and Capital Markets
Stevenson Fundamentals of Finance
Troelstrup and Hall The Consumer in American Society: Personal and Family Finance

PREFACE

In this second edition our primary goal is again to provide students with a thorough foundation in finance. For many students the introductory course is the only exposure to finance, and we cover all the material that we believe is essential to a comprehensive understanding of financial management. Although the text covers a wide range of topics and issues, we have treated the material at an introductory level in all cases. Our method has been to explain the main issues very carefully in order to provide the student with an intuitive understanding of finance concepts and an appreciation of the way those concepts are applied in practice.

The text does not neglect students who will be taking additional courses in finance. Basic principles, techniques, and institutional aspects needed for effective analysis of business finance cases are well covered. A foundation for more advanced theoretical courses is provided in the chapter appendixes and in the more difficult problems, and we have tried to ensure that our approach here is consistent with current theory. Students completing a course of study using this book should be well prepared for courses in investments because of our stress on risk and return in the financial markets and our coverage of the basic characteristics of securities and markets.

The book is designed for undergraduate one-quarter or one-semester courses. If supplemented by cases and readings, however, it will be suitable as the primary text for courses extending two quarters or more. Instructors using this text for an introductory course for MBA students will find that the appendixes to Chapters 5 through 9 enable them to approach basic finance on a more advanced level.

We have made a special effort to provide an integrated discussion of the topics covered. Nevertheless, the book has been designed to offer great flexibility in choosing the order of presentation of most chapters. Furthermore, many chapters have one or more sections that can be deleted without any loss of continuity. Appendixes in several chapters explore major concepts in greater depth. These are intended as supplements to the basic coverage in the text and are designed for use by well-prepared undergraduate and beginning graduate students.

The first five chapters provide an introduction to the book and an introduction to finance in general. In Part I we examine the general nature of financial management, the financial system, taxes, the choice of business organization, compound-interest calculations, risk, and the principles of market valuation.

Parts 2 through 4 cover the basic concepts and techniques of financial management. Part 2 is concerned with long-term decisions involving investments and financing, including dividend policy. Part 3 explores techniques of financial analysis, including ratio analysis, funds flow, break-

even analysis, and forecasting. Part 4 deals with the problems of managing the firm's current assets and current liabilities. The discussion in Part 4 is unusual in that the firm's working capital decisions are explicitly linked to the discussion of long-term investment and financing decisions in Part 2.

Parts 5 and 6 provide supplementary material that is often not covered in an introductory course. Part 5 offers a detailed discussion of the characteristics of the different securities issued by business firms and the procedures for issuing securities. Part 6 covers special topics including mergers and acquisitions, international financial management, and business bankruptcy.

CHANGES IN THE SECOND EDITION

This edition reflects several improvements over the first edition. They include:

1. *An increase in clarity and additions of new explanatory material.* The entire text was examined and changes were made to increase clarity of presentation. Treatment of existing topics was expanded and new sections were added wherever we felt that they would significantly further the student's understanding of the subject. Major changes have been made in Chapters 3, 5, 7, 9, 10, 11, 12, and 13.
2. *Revised problems.* Many new problems were added, especially problems of intermediate difficulty.
3. *New interchapter essays.* About half the essays are new to this edition and most of the remaining ones have been revised.
4. *General updating.* The text reflects more recent data, laws, and management practices.
5. *A substantial revision of the section on working capital management.* This section is now organized as a separate part, with a new chapter providing an overview and summary of the problems of working capital management. The discussion of cash management in Chapter 14 has been significantly expanded.

TEXT ORGANIZATION AND SUPPLEMENTARY MATERIALS

Although this book has been written to offer substantial latitude in selecting which chapters to cover and their order of presentation, we suggest that certain chapters be taught in a given order. Chapters 4, 5, 6, 7, 9, 11, 13, and 14 are prerequisites for certain other chapters. Specifically, Chapter 4 should precede Chapter 5, and Chapters 4 and 5 should precede all of Part 2 (Chapters 6 through 10). We recommend that the chapters in Part 2 be taught in sequence. However, these chapters can be rearranged to suit the needs of the individual instructor. A complete discussion of the possibilities for alternative sequences is included in the *Instructor's Manual* for the text. Many instructors may choose to assign Chapters 11, 12, and

13—which cover financial statement analysis, break-even analysis, and forecasting, respectively—early in the course. This can be done with no difficulty, although the discussion of financial leverage in Chapter 12 is most effectively taught if it is presented after Chapter 9. A sequence that we find quite workable in one quarter consists of Chapters 1 through 9, 11, 13 through 16, and one or more of Chapters 17, 18, and 22; other chapters can be intermingled with these.

Students come to the basic finance course with a wide range of prior preparation in accounting, mathematics, and economics. We have assumed minimal background in these areas, but we do expect that students have had at least one quarter of accounting shortly before taking the class. Able students should be capable of mastering the material almost without regard to their previous formal course work. We have tried to make the book as self-contained as possible and, through extensive use of examples, to make it suitable for self-study.

As an aid to students, many instructors recommend a study guide when such is available. The *Study Guide* written by Thomas E. Stitzel serves as an excellent review and supplement to this book. It contains additional solved problems as well as questions in a programmed learning format. We believe that many students will find this supplement helpful.

The *Instructor's Manual* includes a substantial amount of supplementary teaching material, as well as recommended course outlines, a test bank, transparency masters, and answers to text questions and problems.

Many people have aided us in this project. Our students provided us with numerous comments that have resulted in substantial improvements over earlier versions of the text. Colleagues at the University of Washington and elsewhere have reviewed drafts of the manuscript, and we are very grateful for their help. Our thanks go to Henry H. Barker of Purdue University; William J. Bertin of Kent State University; Stephen G. Buell of Lehigh University; Jess Chua of Oklahoma State University; Eugene F. Drzycimski of the University of Wisconsin; James F. Feller of the University of South Florida; John K. Ford of Northeastern University; John H. Hand of Auburn University; George W. Hettenhouse of Indiana University; Lee Hoover of Iowa State University; Michael H. Hopewell of the University of Oregon; James Hugon of Portland State University; F. Lee Hull of California State University, Fresno; Gene Laber of the University of Vermont; John B. Major of California State University, Hayward; Rita M. Maldonado-Bear of New York University; Robert McGee of Babson College; Allen Michel of Boston University; Donald A. Nast of Florida State University; Robert T. Patton of Western Washington State University; Gerald W. Perritt of Florida International University; Michael Rice of the University of North Carolina; Ralph Ringgen-

ACKNOWLEDGMENTS

berg of the University of Colorado; William L. Scott of the University of Texas, San Antonio; Bernard A. Shinkel of Wayne State University; Donald G. Simonson of the University of New Mexico; Timothy Sullivan of Baruch College; James A. Verbrugge of the University of Georgia; Ernest W. Walker of the University of Texas, Austin; Francis Yeager of the University of Houston; and J. Kenton Zumwalt of the University of Illinois, Urbana. We are indebted to Charles D'Ambrosio, who provided us encouragement and advice throughout the development of the book and helped us at numerous junctures. Charles Henning gave us special assistance with the international finance materials and provided us with an initial draft of Chapter 22. Betty Ross provided us important advice and assistance in the preparation of the new Chapter 24 material. Jean-Claude Bosch, Gregg Brauer, Susan Doolittle, Keith Hauschulz, Charles Lapp, John Settle, and Kaj Svarrer developed many of the end-of-chapter questions and problems and provided us with helpful suggestions for the text material. We would also like to thank Anne Delger and David Dubofsky for proofreading a major portion of the final manuscript.

The editorial staff at McGraw-Hill has been a critical resource for us. Marjorie Singer carefully read the entire manuscript and made numerous suggestions for improving the clarity of the text. We owe her a tremendous debt for the increase in quality that resulted from her advice and prodding, in both the first and the second editions of the book. Bonnie Lieberman and Elisa Adams also contributed in important ways to this effort. Finally, the book could not have been written without the support of Anne Haley.

LAWRENCE D. SCHALL
CHARLES W. HALEY

CONTENTS

Preface	XV
----------------	-----------

PART 1

The Environment of Financial Decisions

chapter 1

Financial Management and Goals	3
---------------------------------------	----------

The Corporate Objective	4
The Key Role of Finance	9
Finance as a Discipline	11
The Organization of This Book	12
Summary	13

chapter 2

The American Financial System: An Overview	14
---	-----------

Services Provided by the Financial System	15
Financial Institutions	20
Financial Markets and Securities	27
Interest Rates	34
Summary	36
Questions	37
Project	38

chapter 3

Taxes and Business Organization	39
--	-----------

Business Organization	39
The Federal Income Tax	43
Summary	54
Questions	56
Project	56
Problems	56
Appendix 3A: Calculating Depreciation Allowances	58

A History of Finance	61
-----------------------------	-----------

chapter 4	
The Time Value of Money	67
Why Money Has Time Value	67
Basic Concepts	68
Solving Problems when the Interest Rate Is Known	82
Finding an Unknown Interest Rate	88
Summary	96
Questions	98
Project	98
Problems	99
Appendix 4A: Formulas and Computational Methods	104
chapter 5	
Risk and Value	110
Prices and Present Values	111
What Is Risk?	114
Measuring Risk	117
The Impact of Risk on Value	126
Summary	138
Questions	139
Projects	140
Problems	141
Appendix 5A: Diversification and Correlation	147
Appendix 5B: A Model of Risk and Return in the Security Market	150
Appendix 5C: The Constant Growth Formula	154
Beating the Odds: The Theory of Efficient Markets	156

PART 2

The Firm's Investment, Financing, and Dividend Decisions

chapter 6	
The Cost of Capital	163
The Average Cost of Capital	163
Determining the Cost Rates	166

Determining the Proportions	173
Calculation of an Average Cost of Capital	174
Summary	177
Questions	177
Project	178
Problems	179
Appendix 6A: Using the SML to Estimate the Rate on Common Stock	184

chapter 7

Fundamentals of Capital Budgeting 187

The Capital Budgeting Process	187
Cash Flow from an Investment	189
Evaluation Techniques	192
Industry Use of Capital Budgeting Techniques	206
Example Problems	208
Special Problems in Investment Analysis	213
Capital Rationing	222
Summary	226
Questions	228
Project	229
Problems	229
Appendix 7A: Why an Investment's Net Present Value Equals Its Benefit to Current Stockholders	246
Appendix 7B: Choices between Mutually Exclusive Investments: Internal Rate of Return versus Present Value	250

Investing Where It Counts: Rates of Return on Alternative Investments 257

chapter 8

Risk Analysis and Capital Budgeting 261

Probability Distributions and Cash Flow Analysis	261
Project Risk and Project Evaluation	269
Computer Simulation: Estimating and Evaluating Cash Flows	283
Risk Evaluation and Decision Tree Analysis	285
Summary	285
Questions	287

Project	288
Problems	288
Appendix 8A: The Determinants of Project Risk, Risk Ranking, and Computing a Risk-Adjusted Discount Rate	297
Appendix 8B: Certainty Equivalents and Risk-Adjusted Discount Rates	303
Appendix 8C: Decision Tree Illustration	305

chapter 9

Financing Decisions and Capital Structure 309

Characteristics of Financing Methods	309
Analyzing External Financing Methods	314
Retained Earnings and Internal Funds	334
The Impact of Financing on Investment	336
Summary	340
Questions	341
Project	342
Problems	342
Appendix 9A: The Modigliani-Miller Analysis of Capital Structure and Value	348

Inflation 355

chapter 10

Dividend Policy and Retained Earnings 357

The Dividend Payment Procedure	357
Factors Affecting the Dividend Decision	359
The Firm's Dividend Policy	363
Dividend Reinvestment and Other Benefit Plans	370
Stock Dividends and Stock Splits	371
Summary	375
Questions	376
Projects	377
Problems	377

PART 3

Financial Analysis and Forecasting

chapter 11

Financial Statement Analysis 387

Financial Statements	387
Ratio Analysis	388
Du Pont System	408
Sources of Information on Firm and Industry Ratios	411
The Purposes of Ratio Analysis	412
Funds Flow Analysis	413
Summary	419
Questions	420
Project	422
Problems	422

Are Financial Statements Reliable?	433
---	------------

chapter 12

Break-Even Analysis and the Measurement of Leverage 436

Break-Even Analysis	436
The Concept of Leverage	446
Summary	453
Questions	454
Project	455
Problems	455

chapter 13

Financial Forecasting and Planning 459

Forecasting Single Financial Variables	460
Financial Forecasting	465
Financial Plans and Budgets	474
Summary	476
Questions	477
Project	477
Problems	477

PART 4

Working Capital Management

chapter 14

Current Asset Management 489

Principles of Current Asset Investment	490
Inventory	493
Managing Accounts Receivable	507
Cash Management	514
Summary	522
Questions	523
Projects	525
Problems	526
Appendix 14A: The Economic Order Quantity Model	533

Electronic Banking 535

chapter 15

Short-Term Financing 537

Major Sources of Short-Term Financing	537
Secured Borrowing	547
Summary	551
Questions	552
Project	554
Problems	554

chapter 16

Working Capital Management 557

Working Capital: Definitions	557
The Working Capital Decision	558
Working Capital and Business Expansion	565
Summary	567
Questions	568
Project	569
Problems	569

PART 5

Sources of Long-Term Capital

chapter 17

Raising Intermediate- and Long-Term Funds **575**

General Decisions in Raising Funds	575
Public Securities Issues and Investment Banking	577
Private Placement	584
Summary	591
Questions	591
Project	592
Problems	592
Venture Capital	595

chapter 18

Leasing **597**

Who Provides Leases?	597
Types of Leases	598
Lease or Buy Analysis	601
Other Considerations	606
Summary	611
Questions	612
Project	613
Problems	613

chapter 19

Common Stock **617**

Rights and Privileges of Stockholders	618
Stockholder Voting	622
Issuing New Shares	624
Repurchasing Stock	632
The Listing of Stock	635
Summary	635
Questions	636
Project	638
Problems	638

chapter 20

Long-Term Debt and Preferred Stock 641

Long-Term Debt	642
Preferred Stock	654
The Refunding Decision	659
Summary	663
Questions	664
Project	664
Problems	664

chapter 21

Convertibles and Warrants 667

Convertibles	667
Warrants	674
Summary	679
Questions	680
Project	681
Problems	681

Options	684
----------------	------------

PART 6

Special Topics

chapter 22

Holding Companies, Mergers, and Consolidations 689

Holding Companies	689
Mergers and Consolidations	691
Summary	708
Questions	709
Project	710
Problems	710

The Merger Game	713
------------------------	------------