Principles of FINANCIAL MANAGEMENT

DOUGLAS R. EMERY

JOHN D. FINNERTY

JOHN D. STOWE

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DOUGLAS R. EMERY

The Koffman Fellow and Professor of Finance Binghamton University (SUNY)

JOHN D. FINNERTY

Partner
Coopers & Lybrand L.L.P.
and
Professor of Finance
Fordham University

JOHN

Profes. Profes. University of Missouri-Columbia
CFA



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To our families with love and appreciation

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PREFACE

The teaching of finance has evolved over the past 40 years from simple descriptions of observed practice into a sound body of theory that represents our collective understanding of finance. In this book, we have summarized that collective understanding by detailing, for the first time, the principles of finance. Our principles of finance are a set of fundamental tenets designed to help you develop intuition about financial decision making.

Finance continues to evolve at a dizzying pace. Changes in the economic environment and innovations in the practice of finance seem to occur almost daily. How can you prepare for such a fast-paced changing field as finance? The answer lies in the very evolution of finance. You must look past simple descriptions and seek a conceptual understanding. Then, when the inevitable changes occur, you can use that understanding to make good decisions.

TO THE STUDENT: OUR TEACHING PHILOSOPHY

We believe that if you understand the "first principles," every problem and issue can be addressed and solved with these principles. Essentially, if you understand the general theory, you can use it to solve specific problems. This is why we have created the principles of finance, and designed this book around them. Our principles of finance provide an integrated view of the theory of finance so that financial decision making can be treated as an application of our collective understanding. By understanding the principles of finance, rather than simply memorizing a collection of seemingly disparate decision rules, you will be better able to cope with the unforeseen and inevitable changes and problems you will encounter in the future. Our principles of finance provide "ready intuition" for solving problems you have never seen before.

We will show you how to apply this intuition to the world of financial management. Many of our applications come from the "real world," where John Finnerty has spent his entire career of more than 20 years. Most of the applications involve well-known corporations. In other applications, we have changed the name "to protect the innocent." All of the applications are designed to illustrate how financial principles are useful and immediately applicable to the real world.

Of course, as in every field, there is always more to learn. We are honest about the limits of our understanding. We indicate what is known, what is believed, and what is still being debated. The evolution of our understanding is the payoff from the very important process of research. Some professors spend part of their time doing research, and have contributed to the development and testing of financial theory. It's not possible to cite all of them, but many are included in the end-of-chapter bibliographies.

A FEW WORDS FROM A PRACTITIONER ABOUT THE IMPORTANCE OF THEORY

This book focuses on the practice of financial management. It's an applied book. So why should I "waste" your time with talk about theory? Quite simply, because it's important. After all, what is it that *applied* refers to? Theory. Yet some people view theory as an irritation. Almost as though theory gets in the way of good practice. They are wrong.

To be able to apply theory successfully, you must understand it. A "mindless cookbook" approach is fine for routine problems. But what do you do when a problem doesn't fit one of the rules? Understanding the underlying principles—the theoretical concepts—allows you to go beyond simple rules. If you understand the financial theory, you can identify the point of departure for evaluating a newly encountered problem. Then you can ask the questions necessary to get the information you need, process this information, and solve the problem.

Our principles of finance provide the framework for financial theory. The first principle, the Principle of Self-Interested Behavior, is the most basic. Without this principle, we cannot explain financial behavior. However, it also deserves special comment. Regrettably, some people misapply this principle.

I have had the unfortunate experience of encountering individuals who "crossed the line" by pursuing self-interested behavior without regard to the law. They paid a heavy price: in three cases, the price included time in jail and lifelong restriction from the securities industry. In a fourth, the price was still high, even without jail time.

In your career, you are likely to face illegal "opportunities" to make literally millions of dollars by, for example, insider trading. Our Principle of Self-Interested Behavior explicitly excludes such behavior; individuals should obey the rules and regulations to ensure legal—and ethically sound—behavior. There is nothing wrong with pursuing self-interested behavior—provided you play by the rules.

We all marvel at certain people who have had self-interested success in finance without formal training. Some very successful traders and salespeople I've known didn't even have college degrees. What they had developed was an understanding of the principles of finance—and a well-honed ability to apply them. They probably couldn't articulate them, but they surely understood how to apply them in their own self-interest. Whether it's a corporate treasurer deciding what type of security to issue, an investment banker determining the structure of a new security, a bond trader deciding which bonds to buy, or a stock portfolio manager deciding which stocks to sell, in my experience, it is their grasp of financial theory and their ability to apply it in *any* situation that distinguishes the successful people.

So my advice is to take time to understand the basics—the theory—because it's in your own self-interest.

TO THE INSTRUCTOR: OUR GOALS FOR THIS BOOK

John D. Finnerly

Following the Markowitz-Modigliani-Miller-Fama finance revolution, Akerlof (1970), Black and Scholes (1973), and Jensen and Meckling (1976) engendered a follow-on revolution involving asymmetric information, contingent claims, and agency theory. These articles in turn spawned hundreds, perhaps even thousands, of subsequent papers exploring their implications. Our goal in writing this book is to enrich the teaching of finance by weaving these important research advances into the very fabric of the traditional financial management course.

When these research advances are presented, students are fascinated. They are impressed by their immediate application and obvious relevance to the real world. The underlying intuitions are as appealing as a downward-sloping demand curve.

However, over the last 20 years, the textbook treatment of this new material has been almost ornamental. The material's importance may be discussed in the first chapter, and after that, perhaps mentioned in one or two chapter introductions. But if you read the chapters, you will find they really contain only the traditional material.

This book brings the excitement of this profoundly important material directly to the student. These are concepts that students *can*—and should—understand, within the context of finance. This new material is integrated throughout, so you can include it without having to "reinvent the wheel." Many of us have participated in research involving agency theory, contingent claims, or asymmetric information, but have kept it essentially separate from our teaching. We might mention the concepts briefly but, essentially, we only cover the standard

material. It's no wonder. The alternative of developing your own unique course material is unreasonably costly, not to mention inefficient.

This book provides the necessary background directly to the students to enrich your topical coverage. Students can read and actually understand much, if not all, of the background material on their own. For example, it takes only a couple of hours to read an enrichment topic such as the one on financial contracting. And our early explanation of contingent claims is given in very intuitive terms, without the usual overwhelming technicalities associated with options. In this way, we have minimized the disruption to the normal in-class topical treatment. In short, the marginal cost can be very low. You don't have to spend a lot of valuable class time on this material. In fact, some of our colleagues assign this material only as outside reading.

TEXTBOOK ORGANIZATION AND DESIGN The field of finance is a rich and extensive discipline. Quite simply, there is just too much material to jam it all into an introductory course. Further, the objectives of the introductory finance class vary across schools, instructors, and through time. Consequently, we have produced an innovative and flexible design for our text.

The text consists of 18 *chapters* and 6 *enrichment topics*. The chapters are complete and rigorous, and can be covered during lectures. The enrichment topics, by design and by their nature, can be covered in class, but they can also be assigned successfully as outside reading. The instructor can also choose to include or omit some or all of the enrichment topics from the course schedule. The concepts from the enrichment topics are woven into the chapters in such a way that the chapters can be covered without regard to which topics are assigned. The topics can also be covered out of order, if desired.

The organization of chapters and enrichment topics does not prioritize the material regarding its teachability or its importance. We do not advocate covering all of the chapters and then covering enrichment topics to the extent that time permits. The instructor can choose any combination of chapters and enrichment topics that best serves the students. Some instructors will cover most of the chapters and most of the enrichment topics. Some will cover the chapters and only one or two of the enrichment topics. Most, because of time constraints, will have to omit some of the material. Some instructors may omit some of the chapters and emphasize the enrichment topics. Suggested syllabi reflecting differing course designs are included in the instructor's manual.

The enrichment topics can be covered in lectures, assigned as outside reading for all students, assigned as optional reading for selected students, or skipped. Those enrichment topics (and chapters) that were not covered during the course can be good to read after the course is over. Nobody can forecast the academic and professional paths that each student will follow. If we did know these, we could design a separate course of study that would most profit each student. Since we believe in "enlightened self-interest," we challenge each student to study independently any chapters or topics that were skipped during the course or to reread those parts where they wish to attain a higher degree of understanding than was required during the class.

THE CURRICULUM REVOLUTION This book's design lends itself very comfortably to the new environment in which many of us find ourselves. Business/management programs all over North America are going through, or have already made, dramatic curricular changes. These changes frequently involve integration of material across areas and perhaps team teaching. This new environment is forcing us to rethink, and change, how we teach finance. With change comes opportunity. We believe this new environment provides an excellent opportunity for the finance discipline to provide a leadership role.

The other business/management disciplines have enthusiastically embraced the idea of a corporation as a set of stakeholders. Beyond accounting, areas such as organizational

behavior, strategic management, business law, marketing, and production are currently working to incorporate the implications of agency theory, contingent claims, and asymmetric information into their views of the organizational world. This makes the principal-agent framework of financial contracting a natural framework for integrating the areas. Therefore, this book offers the chance for the core finance class to play a central role in the new curricular environment.

OTHER INNOVATIONS OF SPECIAL NOTE

PRINCIPLES OF FINANCE In Chapter 2, we describe our dozen principles of finance, which provide the foundation for learning finance.

FINANCIAL CONTRACTING In addition to providing the first formal enumeration of the principles of finance, we further modernize the teaching of finance by including a separate chapter on principal-agent problems in financial contracting. Throughout the book, we recognize the existence of information asymmetries and point out the agency problems it creates. After introducing the problems of financial contracting, we explicitly show how the important insights from this material can be used to solve many practical problems throughout the rest of the book.

OPTIONS We use the term *option* in its broadest sense: any right without an obligation attached to it. This definition allows us to apply the important insights of option theory to a wide variety of topics. For example, we use option concepts in financial contracting, capital budgeting, and capital structure, among many others. Options analysis is one of the most valuable technologies available in finance.

A PRACTITIONER'S PERSPECTIVE John Finnerty's more than 20 years of experience in the everyday world of finance brings a unique perspective to this book. Based on his first-hand experience, John brings the real world into the classroom.

INTERNATIONALIZATION A great deal is heard today about the importance of internationalizing the curriculum. We believe that our country's continued economic well-being demands that we be international in our thinking. It is imperative that today's companies incorporate into their decision-making the specific constraints and additional market imperfections introduced by operating in an international economy. However, the principles of finance don't stop at the border. Therefore, the concepts and principles developed in this book are readily applicable to international transactions. With this in mind, we treat the international aspects of finance throughout the book as both a point of view and a particular market environment in which to operate.

LEARNING AIDS

Several learning aids are embedded in the design of each chapter. Students can profitably use them.

LEARNING OBJECTIVES The introduction to each chapter includes a set of learning objectives, which highlight the things students should be able to do after mastering the material in the chapter.

PRINCIPLES OF FINANCE BOXES The chapters have "principles boxes" in their introductions. These boxes highlight how particular finance principles apply to the chapter material. This sets the stage for the material to follow. It also helps students develop and apply

financial intuition. In addition, the boxes tie the chapters together and reduce the chance of becoming bogged down in mechanical computations.

EXAMPLES Numerous examples are included in each chapter. They illustrate the concepts as well as the computational details needed to apply the concepts. Good numerical examples are a fundamental learning device for many business students.

SELF-CHECK QUESTIONS Following every subsection, there are Self-Check Questions that readers should be able to answer. These questions are very basic, and students should immediately go back and get the answers to any that they don't know.

CHAPTER SUMMARIES Right before taking a test, students should quickly reread all of the chapter summaries. Students can then selectively refresh their memory by reviewing any material they are uncertain of.

END-OF-CHAPTER SOLVED PROBLEMS After each chapter summary, we present problems that review some of the important concepts that were covered in the chapter. Solutions follow these review problems.

END-OF-CHAPTER QUESTIONS These questions are intended to be answered verbally, without calculations. The questions are divided into two groups. The first group of questions should be answerable by direct reference to the chapter. Questions in the second group may require a little more thought because they are more complex, more subtle, or, occasionally, sneaky.

END-OF-CHAPTER PRACTICE PROBLEMSThe end-of-chapter problems are numerous, with an average of more than 35 per chapter. They were written by the authors specifically for this book. The problems are differentiated according to the type of instructional purpose: Problems in problem set A are very straightforward. They review the chapter material and can be answered by direct reference to the text material. Problems in problem set B also relate fairly closely to the material in the chapter but are somewhat more complex. Problems in problem set C are extensions of material presented in the chapter. The C-type problems are designed to challenge the students with complex situations, puzzles, or the examination of more subtle implications of the material in the chapter. Occasionally, problems are drawn from material in earlier chapters to reinforce the retention of important concepts.

NEW TERMS AND JARGON Terms are defined and redefined in early usage to minimize effort wasted on looking up definitions. Examples given early in the book are deliberately drawn from everyday experience to minimize feelings of being overwhelmed by new jargon. Key terms appear in boldfaced type in their first usage and are emphasized by marginal definitions.

HUMOR We interrupt the dry dullness from time to time to bring you occasional messages with humor and levity. Our tone is purposefully somewhat informal, so as not to let the words get in the way of the message.

REFERENCES The body of knowledge in finance is primarily developed and advanced through the academic and professional journals in the field. We have included many references at the end of each chapter, concentrating on the more recent articles in a select set of journals. Our reference list represents only a fraction of the published scholarship, and we humbly apologize for any of your favorite articles that we didn't include. We give these references primarily to invite students to explore those that interest them sometime in the future. We want them to have a feeling for the hundreds of men and women who have made

important contributions to the field. We are all indebted to finance researchers for their genius and their hard work.

TARGETED AUDIENCE

This book was written for use in introductory core finance classes. There is an abundance of applications material, so the book can also be used as a text for case classes or retained as a basic reference text for students moving into more advanced finance classes.

We assume throughout the book a familiarity with the standard prerequisites in business/management programs: college-level algebra, financial accounting, microeconomics, and statistics. Although we assume that students have this background, we provide reminders of basic definitions and concepts that were covered in prerequisite courses. Also, while an understanding of mathematics is necessary, we facilitate the learning process by providing simple examples and analogies. By providing both verbal/logical and mathematical descriptions, we hope to enlist each student's "learning strength," as well as have the descriptions reinforce one another.

Finally, this book has been written with the intent that it will become a useful future reference tool for students as they move through their business careers. For example, the abundance of applications material will provide a reference source for material not covered in class; and the chapter summaries provide an easily accessed summary of the important dimensions and concepts connected with particular topics.

SUPPLEMENTARY MATERIALS

STUDY GUIDE The study guide provides the student with a helpful perspective on how to get the most out of the book. It includes a guide to self-study, and serves as a useful companion to the book. For each chapter, it furnishes an overview, learning objectives, chapter highlights, key terms, worked problems, and a set of exercises with complete solutions.

COMPUTER SOFTWARE A set of computer software spreadsheets designed to be used on a personal computer is available to adopters at no cost. This software covers specific decision/valuation models such as the Black-Scholes option pricing model, capital budgeting project analysis, and lease-versus-buy analysis, among others. Each topic includes a master model that can be used for calculation, problems that ask the student to complete the logic of partially completed models, and problems that ask the student to use the model for computational purposes.

SOLUTIONS MANUAL The solutions manual contains solutions to all of the end-of-chapter questions and problems.

INSTRUCTOR'S MANUAL The instructor's manual provides suggestions on how to use the book as a teaching tool. Each part provides chapter-by-chapter teaching notes that contain a real-world situation to introduce and motivate the material, an outline and summary, including key concepts and definitions, and demonstration problems with transparency masters for class usage. The instructor's manual also includes different class syllabi with suggested problem assignments for alternative course lengths and coverage. A guide for cross-referencing to other texts is also given.

POWERPOINT NOTES The PowerPoint notes provide a complete set of color slide presentations for lecturing on the material.

TEST BANK The test bank provides a wide variety of problems like those at the back of the chapters as well as multiple choice and true-false questions, designed to test student comprehension. The test bank is available in both printed form and as a computerized test bank (for Windows).

FINCOACH Fincoach, written by Puneet Handa and published by Prentice Hall, is a wonderful tool that many students enjoy using. Fincoach is computer software that provides a large number of problems (like end-of-chapter problems) with randomly generated inputs so that an almost infinite number of problems are available.

PHLIP—PRENTICE HALL'S LEARNING THROUGH THE INTERNET PARTNERSHIP (http://www.prenhall.com/emery) Developed by Dan Cooper at Marist College, PHLIP provides academic support for faculty adopting this text. From the PHLIP Web site, instructurs can download supplements and lecture aids, including the Instructor's Manuals, PowerPoint presentations, problem and case solutions, and chapter outlines.

PHLIP also helps you bring current events into the classroom. Using our *PHLIPping* Through the News service, you and your students can access the most current news in finance.

To get the necessary username and password to access PHLIP, please call your Prentice Hall sales representative. Or contact Prentice Hall Sales directly at college_sales@prenhall.com.

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In this book we say a great deal about the 12 principles of finance that are explained in Chapter 2. In writing this book we regularly encountered a 13th principle—the unlucky one that is the bane of all authors. We call it the Underestimation Principle. Its circularity highlights its inevitability: Writing a book always takes longer than you think—even when you take into account the Underestimation Principle! So we sincerely thank our spouses and families for their tremendous forbearance during the long and arduous process that culminated in this book. Yes, it did take considerably longer than we originally estimated, and it even took longer than every subsequent estimation. But we never lied; it's just that the basic principles always assert themselves.

Douglas R. Emery Binghamton, NY John D. Finnerty New York, NY John D. Stowe Columbia, MO

ABOUT THE AUTHORS

The authors are long-time friends and collaborators. Currently, Doug Emery and John Finnerty are the editors of *Financial Management*. The journal is one of the oldest finance journals, and has the second largest circulation after the *Financial Analysts Journal*. A major goal of the journal is to bridge the gap between theory and practice. Their most recent book together, *Corporate Financial Management* (Prentice Hall), was published in 1997.

Douglas R. Emery is The Koffman Fellow and Professor of Finance in the School of Management at Binghamton University (SUNY). Doug has also taught at Purdue University, Washington University in St. Louis, the University of Missouri–Columbia, Nanjing University in China, the University of Calgary in Canada, and Kansas University. He currently serves as an Associate Editor of *Decision Sciences* and has been a Director of the Financial Management Association. His research has been published in a wide variety of journals including the *Journal of Finance, Journal of Financial and Quantitative Analysis, Financial Management, Journal of Accounting Research, Journal of Banking and Finance, Decision Sciences, Psychometrika,* and the *Journal of Marketing Research*.

John D. Finnerty is a Partner of Coopers & Lybrand L.L.P. in the Financial Advisory Services practice and is on leave as Professor of Finance in the Graduate School of Business Administration at Fordham University. He has previously worked for Morgan Stanley & Co., Lazard Frères & Co., Houlihan Lokey Howard & Zukin, and was the Chief Financial Officer of the College Savings Bank. He currently serves on the advisory boards of the Journal of Portfolio Management and The Financier, and is an associate editor of the Journal of Financial Engineering. He has served as president of the Fixed Income Analysts Society and been a director of the Financial Management Association. He has authored, co-authored, or coedited seven other books, including Corporate Financial Analysis: A Comprehensive Guide to Real-World Approaches for Financial Managers. His research has been published in a wide variety of journals including the Journal of Money, Credit and Banking, Journal of Financial and Quantitative Analysis, Financial Management, Journal of Portfolio Management, and Management Science. He co-holds four patents on financial products.

John D. Stowe is Professor of Finance and past chair of the finance department in the College of Business & Public Administration at the University of Missouri-Columbia. He has also taught at the University of Oklahoma, Florida International University, University of California-Irvine, and the University of Houston. He is a CFA charterholder. He currently serves as an associate editor of *Financial Management* and is a past president of the Southwestern Finance Association. He has published his research in several journals, including the *Journal of Finance, Journal of Financial and Quantitative Analysis, Financial Management, Journal of Financial Research, Journal of Risk and Insurance, Journal of Economics and Business, Journal of Business Finance and Accounting, Managerial and Decision Economics, and Organizational Behavior and Human Decision Processes.*

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