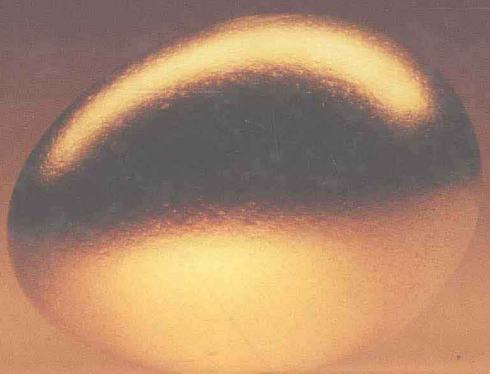
HAIM LEVY

INTRODUCTION TO INVESTMENTS



INTRODUCTION TO
INVESTMENTS

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and
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Preface

A university professor who wrote his doctoral dissertation on the topic of "market efficiency" was walking past the New York Stock Exchange at 11 Wall Street with his ten-year-old son when suddenly the boy exclaimed, "Dad, there's a $100 bill on the sidewalk!" "That's impossible," retorted the professor, "the market is efficient and, in an efficient market, $100 bills cannot be found on the sidewalk!"

This anecdote serves to illustrate the main implication of the belief in market efficiency: If the market is, indeed, perfectly efficient, there will be no bargains in the market; there will be no $100 bills lying around just waiting to be found. In an efficient market, all risky assets will be correctly priced and all available information on a given stock will be duly reflected in its current market price. Under such circumstances, technical analysis, as well as valuation models of stocks, bonds, and options, will not be helpful in security selection. In other words, such models cannot be applied to obtain abnormal profits.

The story of the $100 bill also illustrates the absurdity of the concept of market efficiency pushed to the extreme: There is a $100 bill on the sidewalk and you are the first one to find it. You can't believe your eyes! True, it is impossible for the $100 bill to remain on the sidewalk for a very long time. However, it is equally true that if it happens to be lying there, you might be the first one to see it and pick it up! Is there a moral to this story? Well, even if the market is not perfectly efficient, sophisticated investors who succeed in reaping a profit from undervalued assets will push the stock prices up to an equilibrium price, as predicted by the efficient market hypotheses. For the ordinary investor, the market is usually very efficient. For you, the student taking this course—the sophisticated investor of the future—the market is probably inefficient and so, maybe you will succeed in reaping a profit.

Indeed, some well-known professional investors do not believe in efficient markets and claim they are reaping a profit because the markets are inefficient. This view is summarized in an article published recently in *Fortune* Magazine wherein Sequoia Fund's William Ruane, Berkshire Hathaway's Charles Munger and Warren Buffett, and money manager Walter Schloss all say that they don't believe in efficient markets. Says Buffett: "I'd be a bum on the street with a tin cup if the market were efficient."[1]

[1] Terence P. Pare, "Yes You Can Beat the Market," *Fortune*, April 3, 1995, p. 47.

In light of such statements, this book has been organized and written around the new developments and challenges facing the capital markets. Indeed, recent years have witnessed a threefold revolution in the field of finance and investment in the capital markets. First, the argument as to whether the market is efficient or inefficient has resurfaced. This is a crucial issue because it carries implications regarding the value of some of the topics taught in investment courses as well as the justification for many of the jobs on Wall Street (which, basically, does not believe in market efficiency). The author accepts that there is disagreement on this issue, and, in writing this book, has kept an open mind and is tolerant to the views expressed by both the proponents and antagonists of market efficiency.

Second, the capital market has been bombarded with new investment strategies: derivatives have hit the headlines and financial engineering is "in." At the same time, many institutions and firms have recently lost in the derivatives markets, with the biggest loss occurring to Barings Bank (over a billion dollars!), which was England's oldest bank. (Barings Bank was purchased after its collapse by Holland's ING Group.) The last part of the book focuses on the role that derivative securities such as options play in portfolio management. This part will help you gain a better understanding of these popularly misunderstood and sometimes mismanaged financial instruments.

Third, the market has become truly global and, due to fast-flowing communication systems, transactions between all parts of the planet can be executed with a computer keystroke. Yet international investment should be conducted with great care. The intense fluctuations in the foreign exchange rates recently shook the capital market in 1995 with the dollar reaching its lowest rate against the Japanese Yen since World War II. These fluctuations affect the internationally diversified portfolio's risk and return. This text discusses ways to benefit from international diversification via control of the foreign exchange risk. Finally, there has been growing pressure, both public and internal, on executives toward ensuring ethical practices in the financial marketplace.

All these rapid changes can make the field of investments more difficult for students to understand and for professors to teach, but, at the same time, also more challenging and more interesting.

INTENDED AUDIENCE

The book is addressed to both undergraduate and graduate students. The subject matter can be covered in a two-semester course, but it can also be used for a one-semester course by selecting the chapters considered most important. Generally, this course is taken after the principles of finance have

been studied. However, the concepts needed for this book (such as discounting) are discussed here, in order to achieve a self-contained text. With regard to the mathematics, no more than a high school level algebra is assumed.

The student who studies principles of finance before taking the investment course will probably wonder why some of the material, such as risk and return analysis, appears in both courses. There are many issues that are common to both areas. Both the corporate manager and the portfolio manager face the problem of asset evaluation and risk reduction by diversification. However, there is one distinction: portfolio managers diversify the portfolio across the many stocks available in the market, whereas corporate managers focus their activities on a relatively small number of projects contained in the firm's portfolio of projects. The selection of a portfolio from a large number of assets requires specialized tools, and these tools are introduced and discussed in this book.

ORGANIZATION OF THE BOOK

The anecdote of the $100 bill lying on the sidewalk on Wall Street serves as a guideline in structuring this book. Part I is devoted to the market environment and to a description of the various securities and how they are traded. Part II covers modern portfolio theory. Part III introduces the basic concept of risk analysis, the concept of efficient markets and the technical analyses that rely on the belief that the market is inefficient. Part IV describes bonds and stock valuation models, and Part V is devoted to options and financial engineering.

Investment analysis (in Part II of the text) begins with modern portfolio theory for two reasons:

1. It furnishes the basic tools needed for fundamental analysis and especially for assessing risk. A solid understanding of the concepts related to risk is needed in order to analyze issues such as why long-term bonds are generally riskier than short-term bonds and how to construct a portfolio of bonds or stocks.
2. If the efficient market hypothesis is pushed to the extreme, and it is assumed that it is not possible to distinguish between good and bad investments, neither in the short run nor in the long run, we would have to conclude that the models for valuating stocks, bonds, and options are not helpful. If so, the only investment tools that will be helpful will be those provided by modern portfolio theory.

After discussing modern portfolio theory, one chapter is devoted to the theory and empirical evidence of market efficiency. As the value of

fundamental and technical analysis is limited in a highly efficient market, it is important to have a good understanding of the concept of market efficiency first.

After analyzing arguments for and against market efficiency, models for the valuation of bonds, stocks, and futures are introduced. If investors believe that some models are capable of "beating the market" or inducing "abnormal" profits, they can use them to distinguish between good and bad investments. However, this is possible only if the market is believed to be inefficient or, at least, not perfectly efficient.

While in the past, the common view among academics was that you could not beat the market, recently we have heard the opposite view from academics, which enhances the importance of studying these valuation models. In fact, a recent study by Josef Lakonishok of the University of Illinois, Andrei Schleifer of Harvard, and Robert Vishny of the University of Chicago showed that stock-picking strategies using simple measures outperform both a strategy emphasizing growth stocks and the market as a whole.[2]

SPECIAL FEATURES

This text and its special features were carefully developed by the author and evaluated by a dedicated panel of reviewers. The goal throughout has been to spark the interest of students and enhance their motivation to learn about the field of investments. Included are articles and discussions from sources such as *The Wall Street Journal, Barron's, Business Week, Fortune* and the financial statements of corporations in order to introduce students to real-life scenarios that will give them the opportunity to apply and develop investment techniques. Each chapter opens with a newspaper article (or articles) highlighting the main topic discussed in the chapter, and closes with a full page mini-case dealing with a practical issue taken from the financial media related to the material studied in the chapter.

ETHICAL ISSUES

There is growing concern in the financial community regarding ethical issues and regulation in the area of finance. This text devotes a whole chapter (Chapter 4) to this topic; this coverage is a unique feature of this book.

[2] Josef Lakonishok, Andrei Schleifer, and Robert W. Vishny, "Contrarian Investment, Extrapolation, and Risk," *Journal of Finance*, Vol. XLIX, No. 5, December 1994. This study was also cited in *Fortune* magazine in the April 3, 1995 issue.

FINANCIAL ENGINEERING

A separate chapter (Chapter 25) is devoted to financial engineering and how its innovative investment strategies can be employed in practice. This coverage is also unique to this investments text. In view of the ever-growing importance of financial engineering and the many innovations in this area, much can be learned from this chapter.

FOCUS ON PRACTICE

The five parts of the text open with interviews with practitioners and academics who have experience in managing investment portfolios. These interviews illustrate various career opportunities and describe what a beginner student should do to prepare for such careers. The author is pleased to have contributions from a distinguished group of individuals:

David Wishnow, Union Bank of Switzerland, Toronto

Yusaku Sakaguchi, Nomura Investment Management Co. Ltd., Tokyo

William Sharpe, 1990 Economics Nobel Prize Winner, Stanford University, CA

Dexter Senft, Lehman Brothers, New York

Richard Bookstaber, Salomon Brothers, New York

Investments in the News—articles from *The Wall Street Journal* and other sources are used to launch the discussion of each chapter.

Connecting Theory to Practice and Making the Connection present students with current investment news from *The Wall Street Journal, Fortune,* and other sources. The goal of these features is to show students how to analyze articles on current issues appearing in the financial media, using concepts learned in the chapter.

Cases from *The Wall Street Journal* and Other Sources close each chapter and allow students to apply the concepts introduced in the chapter to real-world events.

Practice Boxes show how the issues raised in each chapter are treated in the financial media and serve to connect the theory to practice.

Problems

A sample of problems appears at the end of each chapter with the aim of exercising the concepts discussed in that chapter. Many problems are taken from the financial media and use actual cases to show the relevance of the material studied.

Special CFA examination questions. These are practice problems that prepare students for the series of Chartered Financial Analyst (CFA) exams administered by the Association for Investment Management and Research (AIMR). For more information regarding the CFA Candidate Program, address inquiries to:

Association for Investment Management & Research
Dept. of Candidate Programs
5 Boar's Head Lane
P.O. Box 3668
Charlottesville, VA 22903-0668

Accuracy

The text, equations, graphs, tables, and end-of-chapter problems have been thoroughly checked for accuracy by both the author and Howard Finch of the University of Tennessee. The author wishes to thank Howard for his commitment to the quality and accuracy of the whole text. Moreover, the publisher will pay $10 to any student or professor who can point out a numerical error in the book! The $10 will only be paid to the first person who discovers the error, provides a correction, and sends that correction to:

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Ancillary Materials:

Study Guide The Study Guide, prepared by Venkateshward Reddy of the University of Colorado, Colorado Springs, provides students with valuable chapter summaries and practice exercises. Each chapter contains a chapter overview and outline, key terms, definitions, true/false questions, multiple-choice questions, and problem sets that include CFA exam problems.

Instructor's Manual Teaching tips and detailed solutions to all end-of-chapter questions and cases are included in the instructor's manual that accompanies the text. Transparencies of selected text images are also provided. The teaching tips were provided by Joseph Vu of DePaul University.

Software Spreadsheet software, developed by Robert Ritchey of Texas Tech University, is provided free to adopters of the text to give students the opportunity to implement techniques presented in the text. The spread-

sheets contain both generic models for solving a class of problems as well as solutions to many specific text examples and end-of-chapter problems. An additional set of tutorial software tools written by John O'Brien and Sanjay Srivastava of Carnegie Mellon University is available to adopters of the text at special bundled discounts. Modules available for bundling include:

- *Modern Portfolio Theory and CAPM Tutor*
- *Option Valuation and Option Tutor*
- *Bond Valuation and Bond Tutor*

Test Bank A test bank, prepared by Joseph Vu of DePaul University, includes multiple-choice and true/false questions.

Computerized Test Bank A computerized test package, MicroExam 4.0, including all of the multiple-choice and true/false questions from the test bank is also available free to adopters of the text in $3^1/_2$" IBM form.

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A Note to the Student

What Are the Potential Benefits from Studying Investments?

Why study investments? There are several reasons why it is worthwhile to study finance and, in particular, investments. First, in this day and age, you can hardly go through life totally oblivious to terms such as swaps, options, bonds, stocks, and yields. The media just won't let you! In order to understand the financial news, you will need some understanding of such terms.

Second, no matter what job you eventually get, hopefully, you will be able to save some of your income. Should you buy mutual funds, or should you personally diversify across various stocks? Should you play it safe and buy certificates of deposit, or should you take on risk and invest in emerging markets? The material in this book will help you make decisions regarding your savings.

Third, studying finance is very challenging. It is a practical field in which the most sophisticated models are applied. For example, the beta risk index

is used and published by Value Line and Standard & Poors in ranking stocks. The Black-Scholes Option Pricing Model (which is far from being simple) is employed regularly by practitioners and traders in the financial markets. Thus, the topics covered in this book are not only intellectually challenging but also important in day-to-day decision making.

Indeed, the theoretical underpinnings of this field finally received recognition by the Nobel Committee, in 1990, when it awarded the Nobel Prize in Economics to financial economists Harry Markowitz, Merton Miller, and William Sharpe. The main contribution of Merton Miller is in the area of corporate finance, and a large part of this book relies on Markowitz and Sharpe's work, which laid the foundation for portfolio decision-making models and equilibrium risk-return relationships.

Perhaps the most important reason for investing in this subject is the hope that the yield will be truly profitable. Indeed, the rewards of a career in this area can be awesome! Moreover, a job on Wall Street spells prestige. In order to acquire such a job—and the competition is stiff—you will usually need an MBA degree. The following table will give you an idea of what to expect in pursuing a career in Investments.

"Still Making Out on Wall Street"[3]

TOTAL COMPENSATION: SALARY AND BONUS

Position	*Junior Professional (3–5 years' experience) in thousands*	*Senior Professional (10+ years' experience) in thousands*
Stock research analysts	$150–$250	$350–$500
Bond trader	$300–$500	$650–$850
Corporate finance generalist	$250–$400	$700–$1,000
Institutional bond salesperson	$200–$300	$600–$800

Who said no one wants to be a statistic! But what's the catch? Well, to receive these high salaries, you need 3–5 years or 10+ years of experience. The "catch 22" here is: "How can you get a job when you have no

[3] Based on article by Ford S. Worthy, *Fortune*, April 6, 1992, p. 71.

experience, and...how can you get experience without a job?" Our aim is to provide you with enough knowledge for your first job even with no experience. Indeed, we hope that mastery of the material presented in this book will be a good substitute for the experience needed to acquire your first position and to be successful in your job. And, who knows, within no time, you may be part of the salary statistics appearing in the above table!

Haim Levy
Jerusalem, Israel

About the Author

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Hebrew University of Jerusalem and University of Florida

Haim Levy is the Miles Robinson Professor of Finance at Hebrew University of Jerusalem. He has taught at the University of Illinois, the University of California at Berkeley, McGill University, the Emory School of Business, DePaul University, the Wharton School of Business at the University of Pennsylvania, the Hebrew University of Jerusalem, and the University of Florida. He has served as a consultant to many firms and to the government.

Haim Levy has published 13 books. More than 180 articles written by him have appeared in the major journals of finance and economics. He was ranked as the most prolific researcher in the field of finance in the post–war years (reported in *Financial Management*, Autumn 1988), and was also rated as the most cited researcher in Robert Brealy and Helen Edwards' *A Bibliography of Finance*, MIT Press, 1991 (reported in the *Journal of Finance*, June 1991).

Haim Levy has served as an associate editor of the following journals: *Journal of Finance, Journal of Banking and Finance, Management Science, Financial Review, Review of Qualitative Finance and Accounting, Research in Finance, Journal of Portfolio Management,* and the *Financial Analyst Journal.*

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