



# **ESSENTIALS OF MODERN INVESTMENTS**

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# Preface

This textbook for a first course in investments has been written primarily for undergraduate students who have a limited background in mathematics and finance. To achieve this objective while still encompassing the broad scope of the investment process, we have had to be concise in exposition and sparing in the use of formulas and quantitative subjects.

However, a major development in modern investments is increasing quantification. To appreciate the current state of the art, one must grapple with distributions, risk measures, betas, and regression equations. Such concepts are helpful in describing the complex factors that influence investment success or failure. Therefore, we have included and thoroughly explained the equations and mathematical symbols necessary to place the investment process in a properly balanced perspective—but no more.

We have concentrated on a comprehensive and up-to-date treatment presented in easily understood terms. The progressive development from simple to more complex coverage will, we believe, provide a satisfying experience for students and instructors. We are confident that the book will convey the fascination that is inherent in the field of modern investments.

Our special thanks are expressed to Harold W. Stevenson of Arizona State University for his thorough review of the manuscript and for his many constructive suggestions.

We are also grateful to many friends and colleagues for their assistance during the preparation of the book.

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**part I**

**THE INVESTMENT  
SETTING**



# 1

## Investments: An Overview

**LET'S GET RIGHT TO THE POINT.** We want to help you understand the investments field as it is currently understood, discussed, and practiced. We want to show you how to grasp the key concepts that are essential to that understanding.

Descriptive and quantitative material on the investments world is available in abundance, possibly in excess. Some of this material is very enlightening; some of it is debatable, useless, and even harmful. We cannot hope to cover every side of the subject—no single volume of manageable length can do that. We want to cover what we think is useful and enlightening. We shall also offer some ideas about what you can expect to accomplish by using what you learn. Naturally, you will also learn what investment objectives you *cannot* realistically expect to achieve.

Some investors do not understand what they are doing or why they are doing it. Our purpose in this book is to give you an appreciation of the nature and actual operations of the field of investments and an awareness of what expectations are and are not reasonable within the investments environment.

One problem in this overview chapter is that we cannot explain or describe everything at once. For example, you may be reading terms like *market efficiency*, *utility maximization*, and *technical analysis* before you understand them fully. Be patient and stay involved. All will become clear eventually.

## The objective: satisfactory returns

Investors buy and sell financial assets in order to earn *returns* on them. They hope these returns will be large enough to compensate them for perhaps postponing purchase of some consumer goods (cars, houses, vacation trips) and for taking the risks of ownership. Otherwise, why take on the worry and nuisance of investment? The main reason is that investors want to earn a return on their money. Cash has an *opportunity cost*: by holding cash you miss the opportunity to receive a return on that cash.

Why do people buy common stocks instead of purchasing luxury items or depositing the money in a savings account? To earn a “satisfactory” return—one in line with their hopes, beliefs, and expectations about the earning power of corporations. They know they will be taking a greater risk of losing some of their money by buying common stocks, but they expect to earn a return greater than that available from a savings account.

“Satisfactory” returns are different for different people. Two rational investors may be satisfied by quite different levels of anticipated return and estimated risk. Technical economic jargon explains this difference in preferences by saying that rational investors strive to *maximize their utility*. Rational investors like returns and don’t like risk. Therefore they buy, hold, or adjust their portfolios of financial assets so as to achieve maximum utility.

### UTILITY MAXIMIZATION

Although entire books have been written on the subject, for our purposes we can define utility maximization as *maximizing the expected return from a portfolio for a given level of risk, or minimizing the risk of the portfolio for a given level of expected return*. “Expected return” is a precise statistical term; it is not simply the return the investor expects. “Risk” is *not* a precise statistical term, though we will usually use precise statistical terms to describe and quantify it. The investment process *must* be considered in terms of both aspects—risk and return. To ignore risk and talk only of return is to take a naive, outdated approach to investments. Risk and return are inseparable.

The rational investor’s objective, then, is to construct an *efficient* portfolio of financial assets—a portfolio which best maximizes *that particular investor’s* utility, whatever its exact form. We admit that not all academicians and practitioners view utility maximization as the investor’s proper goal. The background information in Part I will offer some help in understanding the essence of what we are concerned with here, and why we

consider utility maximization to be the basis for a modern approach to investments.

## Security analysis and portfolio management

The investments process has traditionally and properly been discussed as if it were made up of two parts: security analysis and portfolio management. Security analysis estimates the expected returns and risk on financial assets. Portfolio management uses those estimates to construct and manage portfolios designed to provide optimum or maximum utility to their owners.

### FUNDAMENTAL ANALYSIS VS. TECHNICAL ANALYSIS

In the United States, roughly 10,000 professional security analysts and untold numbers of amateur analysts study securities to estimate their future returns and risks. They usually follow the traditional paths of *fundamental analysis* or *technical analysis*, or perhaps a combination. Fundamental analysts study financial or economic information such as company sales, earnings, dividends, financing policies, and so on. Pure fundamentalists then determine the *intrinsic* or “true” value of a security and recommend purchase if intrinsic value is greater than current market price, or sale if intrinsic value is less than current market price. Modern fundamental analysis also requires that analysts quantify *how certain* the estimated returns are—another way of saying how risky it would be for investors to act on the analysts’ advice.

Technical analysts behave very differently. They study price patterns, trading volume, odd lot sales, and other input that they believe may serve as indicators of future stock prices. Pure technicians have come under increasing attack because they have generally been unable to provide the end result of sound security analysis: consistently reliable estimates of returns and risks on individual securities over a particular holding period.

### PORTFOLIO MANAGERS

Portfolio managers take the security analysts’ return/risk estimates and combine selected securities into portfolios designed to achieve each particular investor’s objectives. As we will show later, the essence of modern portfolio theory is that *a portfolio’s total characteristics are not merely the sum of the portfolio’s single-security characteristics, particularly with respect to risk*. A proper understanding of portfolio techniques can reduce the risk an investor might otherwise assume.

The “security analyst” and the “portfolio manager” may be the same

person, a full-time professional or a part-time amateur. Nevertheless, the concepts of security analysis and portfolio management are as relevant for an average investor as they are for a sophisticated institution such as a mutual fund. Their abilities and resources may be vastly different, but both investors are—knowingly or unknowingly, implicitly or explicitly—estimating expected returns and risks, then integrating chosen financial assets into some type of portfolio.

Current knowledge allows the portfolio manager to build an “optimum” portfolio with a high degree of confidence, *if* the security analyst’s estimates are trustworthy. Although portfolio management is not an exact science, security analysis remains the real problem area of investments. It will always be so, because no security analyst can be certain about the future.

## The investments environment

### UNCERTAINTY

Estimates are usually imperfect and are sometimes dead wrong. All we can do is to make our most *informed* return and risk estimates, then keep a sharp eye out for shifting circumstances. We may rely totally on past data for making estimates (extrapolation), or we may use the past as a starting point and then modify whatever the past suggests, to incorporate our beliefs about what is most likely to happen. No matter which course we take, or how careful and informed we are, the uncertain future will cause us to make mistakes.

Different investors deal with uncertainty in different ways. But everyone must live with it and come to terms with it because uncertainty is the major obstacle to achieving the rational investor’s goal: an optimum portfolio with its maximum utility. Relying totally on past data or on the past performance of a particular investment is probably not the way to wealth. A 20 per cent return in the stock market last year is no guarantee of a 20 per cent return over the coming year. If everyone were to imitate successful investors, no one would be particularly successful in the future. Assets targeted to perform well would be bid up in price until they did not provide the returns that they would have provided (or did provide) to the few who owned them before the rush.

A “magic rule” for investment success is of no value if everyone knows about it. Prices, after all, conform to the laws of supply and demand. Strong demand pushes up prices, but prices have an *equilibrium level*. At some point they will embody *all* expectations. Knowing what everyone else knows is not too valuable, unless you subscribe successfully to the Greater Fool Theory: I may be a fool to buy, but I can probably sell at

a profit to an even greater fool. Unfortunately, *not* knowing what everyone else knows can be costly and painful.

Hindsight can show what should have been bought or sold last year, but it cannot help build a successful portfolio for next year. Many unforeseeable factors will cause the stock market to move, and the market's movements will affect individual stocks. We must accept uncertainty and recognize that the best investment research and the hardest study may turn out to be totally useless in forecasting the future.

At the same time, we should not be overly pessimistic. Surely we are better off to use the best information available and make rational judgments about the future than to accept advice indiscriminately, or throw up our hands and ignore the financial markets altogether. Over the past several decades, even the buy-and-hold investor in common stocks has averaged a 9 to 10 per cent return—a performance unmatched by any savings bank.

We have a healthy respect for uncertainty and its implications. Yet, we think we can show you how to deal with it realistically and successfully. The important point is simply that the future insists on being uncertain. That uncertainty greatly affects participants in the investments environment—and books on the subject.

## OTHER PARTICIPANTS

A second key aspect of concern to each investor is the other people involved. In recent years, individuals have *sold* more shares of stock than they have bought. Still, about 25 million Americans are *direct* common stock owners. In addition, institutions such as pension funds, banks, insurance companies, trust departments, and mutual funds act on behalf of individuals by managing large portfolios of financial assets. Individuals are the *indirect* or ultimate owners of these institutional portfolios, but they have in effect hired managers who devote their full time and effort to the complex process of investment management. Unlike individual investors, the institutions have tended to *buy* more than they sell, so they have gradually become the dominant participants in “the money game.”

What does all this mean to an “average” investor? It means that countless buyers and sellers of financial assets in this country are constantly making decisions based on their knowledge, resources, and objectives. The aggregate decisions of these participants translate into the aggregate supply and demand influences on securities, which in turn determine securities prices. If a large group of investors suddenly decides that General Motors is a good buy, GM will rise as they place buy orders and increase the

demand for the stock. If holders of Polaroid (including a large number of institutional investors) suddenly change their attitudes about Polaroid's prospects and decide to sell (as they did in 1974), the price declines.

The knowledge, resources, and time available to market participants for analyzing market information range across a broad spectrum. Financial institutions have staffs of full-time security analysts and portfolio managers who concentrate on their investment specialties. A mutual fund's oil industry analyst obviously knows more about Exxon's prospects than the average investor, who finds out what Exxon is doing from the daily newspaper.

Average investors are at the other extreme from the large institutions. They work full-time at non-investment jobs. Any assessment of Exxon's prospects must be done during leisure time. Therefore, they must seriously consider and evaluate a readily available alternative—turning their money over to an institution and paying a fee for professional, full-time money management.

**Advantages for Institutional Investors.** The average investor should be under no illusions about the advantages that some market participants enjoy. Large institutional investors manage portfolios worth hundreds of millions of dollars. They buy and sell enormous quantities of securities and generate correspondingly large commissions within the brokerage industry. When new information becomes available, the institutions are quickly aware of it because they are constantly and skillfully seeking it out. Since the institutions account for well over half of the trading volume (and commissions) of the New York Stock Exchange, brokerage firms are understandably conscientious about keeping the institutions posted on new developments.

Given the unevenness of access to information and advice, can the average investor hope to have a fair chance in the market? Probably so.

## THE MARKETPLACE

Over the past two decades a tremendous revolution has taken place in knowledge of the markets, particularly the stock market, and in attitudes toward them. The findings of serious researchers and the implications of these findings for the investments field cannot be reserved for some distant part of this book. Any student of the securities markets should consider, at the outset, the nature of markets as seen by thoughtful, experienced academic researchers and other investment professionals.

**Primary and Secondary Markets.** First, some background. Since the world will never be made up solely of wealthy philanthropists and chari-



table institutions, the demand for capital will always exceed the supply. The function of the capital markets is allocating capital from those who can best spare it to those who can best use it. One of the best known capital markets, the New York Stock Exchange (NYSE), is a *secondary* market because its member brokers, acting for their clients, buy and sell *existing* securities. *Primary* markets distribute *new* securities.

Secondary markets for common stock are almost essential to primary markets. Common stock, which theoretically has a perpetual life, would be a far less attractive type of investment if it could not later be sold conveniently (though not always at a profit). An owner of any NYSE-listed stock knows it can be sold simply by contacting a broker.

Thousands of obscure, non-listed securities cannot be bought and sold so easily. However, we plan to limit our discussion to widely held securities and to national securities exchanges. They will provide us with more understandable illustrations—and enough complications.

**Market Efficiency.** Among the newer attitudes toward securities markets, much research has been done in an attempt to answer what might appear to be a simple question of only moderate significance: *How efficient are our securities markets?* In one sense, the question is simple. Our major markets are efficient *processors of buy and sell orders*. The NYSE auction market system has its critics but is acknowledged to be a relatively efficient processor of investment orders.

What we must come to terms with is another kind of efficiency. Debate continues to rage over the question: How efficient are our securities markets as *processors of information?* Conclusions about that question may determine whether investors seriously consider purchasing the stock of *any* well-known publicly owned company. In other words, investors must decide which form of the *Efficient Market Hypothesis* (EMH) seems most rational.

Before describing the EMH's variations, a note about "information" will be helpful. We use the word not merely to describe hard data, or factual reports, or informed opinion, but *all* elements that affect stock prices—from statistics about last quarter's earnings to misinterpretation, misinformation, fads, trends, and faulty expectations.

## THE EFFICIENT MARKET HYPOTHESIS

The Efficient Market Hypothesis (EMH) has three forms: *weak*, *semi-strong*, and *strong*. Those terms mean that the markets are weakly efficient, fairly efficient, or strongly efficient as processors of information. Let us examine each form more closely.