

# Introduction

# 1

## CHAPTER

**W**arren E. Buffett, the celebrated chairman and chief executive officer of Omaha, Nebraska-based Berkshire Hathaway, Inc., started an investment partnership with \$100 in 1956 and has gone on to accumulate a personal net worth in excess of \$60 billion. The most successful stock market investor of all time, Buffett is adept at communicating the importance of basic investment concepts. For example, a group of investment students asked Buffett if he thought the stock market is perfectly efficient. Buffett replied that most stock prices, most of the time, are appropriate. Buffett does not believe he could go line by line down the list of NYSE-listed firms and say that this one is a little high, this one is a little low, and so on. Prices are generally right most of the time, Buffett said, but not right all the time. If you know what you are doing, taking advantage of occasionally undervalued stocks can make you very rich.

Although stock prices are generally right most of the time, the occasionally overvalued stock can, and does, cause many novice investors to lose money. In fact, many otherwise levelheaded investors focus on foolish short-term speculation rather than sensible long-term investing. As a result, the average investor consistently underperforms the market averages, and many speculators consistently lose money. They tend to buy high and sell low: a surefire plan for losing money. The average investor needs a disciplined plan of regular investment for meeting long-term investment goals.

Investment analysis and behavior teach us that the long-run performance of any investment is tied to the economic success of the underlying business. That's why it is so important to become familiar with common financial yardsticks of business performance and stock market valuation. Successful investors also need to avoid predictable psychological tendencies and mistakes in personal behavior that often lead to subpar financial results.<sup>1</sup>

<sup>1</sup> For details about Warren Buffett's investment philosophy, see the Berkshire Hathaway, Inc., Web site at [www.berkshirehathaway.com](http://www.berkshirehathaway.com). Buffett's letters to shareholders are especially insightful.

## CHAPTER OBJECTIVES

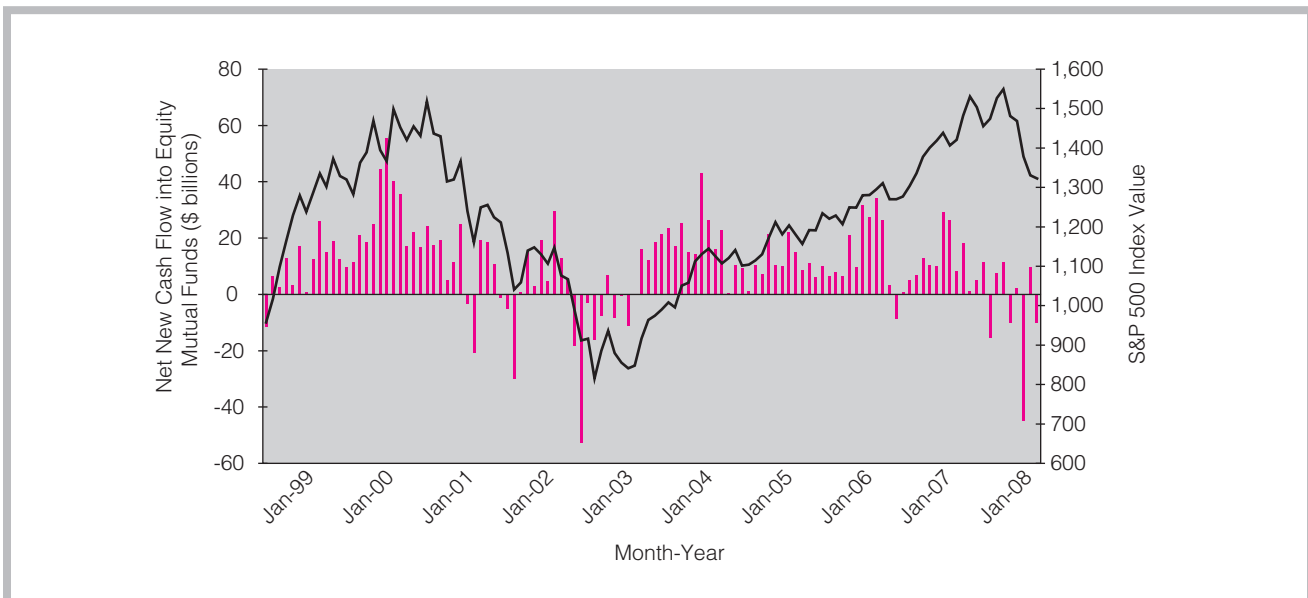
- Learn the power of building wealth through investing over time.
- Understand the nature and performance of financial assets.
- Identify common objectives of investors.
- Practice obtaining important financial information.
- Become acquainted with job opportunities in the financial services sector.

## Nature of Investing

### Buy Low, Sell High

The investment process is much more complicated than simply buying low and selling high. A successful investment program will execute more stock and bond purchases at low prices and sales at high prices. Yet this simple objective is difficult to achieve. Consider the flow of money that individual investors invest in mutual funds. Figure 1.1 shows the net cash flow into stock mutual funds by month from September 1998 to March 2008 and the relationship with the S&P 500 Index. Notice that on average, investors poured money into stock funds near the peak of the bubble in March 2000. In other words, they bought high. After three years of falling prices, investors started to abandon stock mutual funds in droves. They sold low.

Where did investors put the money they took out of equity funds? Investors poured \$24 billion into bond funds in 2002 and nearly \$65 billion during the first six months of 2003. This investment in the bond market coincides with a historic peak in bond prices (and the associated decline in interest rates). Did investors buy high again? Interest rates drifted slightly upward until 2007; thus, bond returns were likely lower than these investors expected. But all is not lost! People can learn to improve their decision making. Note in the figure that investors did not pour money into the peak of the market in 2007. In fact, it appears that there was more selling than buying at the 2007 peak.

**FIGURE 1.1**
**Monthly Net Flow into Equity Mutual Funds and the S&P 500 Index**


Source: Data from The Investment Company Institute ([www.ici.org](http://www.ici.org)).

This book explains the concepts and analytical tools that can be used to create a successful investment program. Most of these ideas have been available to investors for decades. Yet investors frequently make poor decisions caused by psychological biases and emotions. Investment theory is useful because it provides the framework necessary to aid investor understanding of asset pricing. Theories from related fields, such as psychology, are also useful because they help explain why investors sometimes make bad investment decisions. In a general sense, a careful understanding of these theories is essential because it helps understand and predict the behavior of financial markets, individual investors, and investment professionals. Making good decisions and avoiding big mistakes induced by irrational behavior allow an investor to build more wealth.

## Build Wealth over Time

Building investment wealth takes time. The three most important factors are the investment rate of return, the amount of time the money will be invested, and the amount of money invested. More wealth can be built through a higher return and a longer investment horizon.

Consider how wealth is grown over time. In Table 1.1, notice how similar the amounts are that result from a \$10,000 investment at 6, 9, and 12 percent when only one year of investment returns is considered. Starting from \$10,000, a 6 percent rate of return in one year will result in a final investment value of \$10,600. Similarly, starting from \$10,000, 9 and 12 percent rates of return generate ultimate investment values of \$10,900 and \$11,200, respectively. Over a single year, there is little difference between 6, 9, and 12 percent rates of return. What is intriguing is how different rates of interest compound to widely differing amounts over extended periods. (By the way, if you feel a little rusty in the time-value-of-money concepts and computations, review Appendix A.)

For example, over a 12-year period, 6 percent interest leads to a doubled amount of investment. If you look in Table 1.1 under the 6 percent column, you can see that over 12 years, a \$10,000 investment grows to \$20,122, or roughly doubles. Over 24 years at 6 percent interest,

**Compound Interest Leads to Amazing Growth** *Over a 24-year period, a 9 percent return leads to twice the wealth of a 6 percent return, and a 12 percent return almost quadruples the wealth generated by a 6 percent return\*.*

**TABLE**

**1.1**

Number of Years	Look What \$10,000 Turns into with an Investment Return of:		
	6%	9%	12%
1	\$ 10,600	\$ 10,900	\$ 11,200
2	11,236	11,881	12,544
3	11,910	12,950	14,049
4	12,625	14,116	15,735
6	14,185	16,771	19,738
8	15,938	19,926	24,760
12	20,122	28,127	38,960
16	25,404	39,703	61,304
20	32,071	56,044	96,463
24	40,489	79,111	151,786
28	51,117	111,671	238,839
32	64,534	157,633	375,817
36	81,473	222,512	591,356
40	102,857	314,094	930,510

\*Annual compounding is assumed.

an investment of \$10,000 grows to \$40,489, or roughly quadruples. Over 36 years, an investment of \$10,000 at 6 percent interest grows to \$81,473, or doubles roughly three times. Money growing at 6 percent roughly doubles in 12 years, doubles twice in 24 years, and doubles three times in 36 years.

What happens if the rate of return can be increased to 9 percent per year? An investment yielding 9 percent will double roughly every eight years. Notice in Table 1.1 that in eight years at 9 percent interest, money grows from \$10,000 to \$19,926. In an additional eight years, that money grows from \$19,926 to \$39,703, or roughly quadruples. In just another eight years, such an investment doubles once more to \$79,111, or roughly \$80,000. Note that a 9 percent return per year is 50 percent more than a 6 percent return. Yet after 24 years, earning a 9 percent return produces double the value of earning just 6 percent per year. Small differences in return lead to large differences in wealth over time!

The effect of differences in the rate of compound interest on the amount earned from investment becomes even clearer when one considers a 12 percent rate of return. Remember that over a one-year period, 12 percent returns simply twice the total amount earned on an investment earning 6 percent investment. Table 1.1 shows that over a period of 24 years, \$10,000 grows by almost sixteenfold to \$151,786. It is impressive to recognize that over 24 years, 12 percent interest results in much more than simply twice the rate of return earned at 6 percent. Over an extended period, compound interest results in amazing growth. A 9 percent growth rate generates far more total return than does a 6 percent rate. The amount earned with 12 percent growth can become stunning over an extended period.

Most people do not have a large amount of money with which to begin investing. Successful investors tend to start with a small amount and regularly invest over time. Consider that a young investor investing only \$100 per month, or \$1,200 per year, over a 40-year time horizon will accumulate \$920,510 in a portfolio yielding 12 percent. Because of the advantage of time, this is achieved with a much lower investment than that required by a middle-aged investor seeking to accumulate a similar amount. Consider the middle-aged investor contributing \$12,000 per year toward retirement, or 10 times as much as that contributed by the young investor. A middle-aged investor contributing \$12,000 per year toward retirement in a common stock portfolio yielding 12 percent will accumulate \$864,629. This means that, in investing for retirement, the advantage of a longer investment horizon gives the young investor more than 10 times the benefit earned by the middle-aged investor.

There is truth in the saying that rich people have three things in common: Rich people tend to be smart, lucky, and *old*.

As a student or novice investor, perhaps you don't have the advantage of a substantial amount to invest. Despite this limitation, the undeniable advantage enjoyed by all young investors is an extremely long investment horizon. The advantage of a long investment horizon can overcome the temporary disadvantage of not having a significant sum to invest. As shown in Table 1.2, an investment of as much as \$1,000 per month over 40 years results in \$9,205,097 in retirement wealth. This is a level of wealth seldom achieved in our economy. Building significant retirement wealth requires a significant sacrifice in terms of postponed spending.

How do people earn a 6 or 12 percent return over time? Investors must hold well-diversified portfolios that contain financial assets. These portfolios can contain different proportions of cash reserves, bonds, and stocks. The allocation of these assets determines the levels of risk and return likely to be experienced.

## Types of Financial Assets

There are many different types of financial securities. These securities can be generally categorized as representing ownership or lending interests. Common stock represents an ownership interest in part of a business; ownership of real estate assets is represented by shares of real estate investment trusts. When a fixed-income investor buys a certificate of deposit, that is the same as lending directly to a financial institution such as a bank. When buying a corporate bond, the fixed-income investor is lending directly to a company. Some financial securities

**Long-Term Payoff to Regular Investing Can Be Huge**

*Young investors can accumulate significant wealth through regular investing of modest amounts. The longer you wait to start investing, however, the greater the cost to building significant wealth.*

**TABLE****1.2**

Amount Invested per year	Number of Years	Wealth Created with an Investment Return of:		
		6%	9%	12%
<b>Young Investor</b>				
\$ 300	40	\$ 46,429	\$ 101,365	\$ 230,127
1,200	40	185,714	405,459	920,510
2,000	40	309,524	675,765	1,534,183
6,000	40	928,572	2,027,295	4,602,549
12,000	40	1,857,144	4,054,589	9,205,097
<b>Middle-Aged Investor</b>				
\$ 300	20	\$ 11,036	\$ 15,348	\$ 21,616
1,200	20	44,143	61,392	86,463
2,000	20	73,571	102,320	144,105
6,000	20	220,714	306,961	432,315
12,000	20	441,427	613,921	864,629

have both ownership and lending characteristics (convertible bonds) or represent part ownership of a broad portfolio of financial securities (mutual fund). This book will describe all such securities in detail. For the purposes of this introductory chapter, however, we begin by describing three broad categories of financial assets: cash, bonds, and stocks.

## Cash Reserves

A major class of financial assets is generally referred to as **cash reserves**, or short-term money market instruments. The primary attraction of cash reserves is that they offer modest income with stability of principal. Although investing in cash reserves allows one to protect the initial value of an investment, there is a cost in that only meager rates of return are typically offered on cash reserves. The income generated from cash reserves rises and falls with short-term interest rates.

One of the most common uses of cash reserves is to buy **Treasury bills**, which are debt obligations of the U.S. Treasury that have maturities of one year or less. Another popular means for investing cash reserves is to buy bank savings deposits, which are accounts that pay interest, typically at very low levels, do not have any specific maturity, and usually can be withdrawn on demand. A bank certificate of deposit, or CD, is a bank savings deposit that has a specific time of maturity, cannot be withdrawn on demand, and therefore pays a somewhat higher rate of interest.

**Cash reserve**

Short-term money market instrument.

**Treasury bill**

Treasury obligation with maturities of one year or less.

## Bonds

**Bonds** are interest-bearing debt obligations issued by corporations, the federal government and its agencies, states, and local governments. Bonds represent a loan to the issuer and provide income plus a promise to repay principal on maturity. Although bonds generally offer higher and steadier income than cash reserves, their principal value fluctuates as interest rates change. In general, when interest rates rise, bond prices decline; when interest rates decline, bond prices rise. One popular variety of debt securities is issued by the U.S. Department of

**Bond**

Interest-bearing debt obligation.

FIGURE 1.2

Stock Certificate of Walt Disney Company

**Treasury note**

Treasury obligation with maturities of more than 2 years but less than 10 years.

**Treasury bond**

Treasury obligation with maturities of 10 to 30 years.

the Treasury. **Treasury notes** are debt obligations of the U.S. Treasury that have maturities of more than 2 years but less than 10 years. **Treasury bonds** are Treasury obligations with maturities of 10 to 30 years. In addition to such Treasury securities, a wide variety of U.S. government agency bonds exists. For example, the Federal Home Loan Mortgage Corporation, an affiliate of the Federal Home Loan Bank, creates a secondary money market in conventional residential loans by purchasing mortgage loans from banks. Corporate bonds are simply debt obligations issued by individual firms. Municipal bonds are interest-bearing securities issued by local governments that are typically free of federal income taxes.

## Stocks

**Common stock**

A proportionate ownership stake in a corporation.

A third important type of investment asset is **common stock**. Equity securities represent ownership interest in a corporation. Figure 1.2 shows a common stock certificate for entertainment firm Disney. Stocks offer the potential for current income from dividends and for capital appreciation resulting from an increase in value over time. Although common stocks offer the long-term potential for superior rates of return, stocks are susceptible to short-term price risks. Stock prices fluctuate over short time periods. At times, this volatility can be severe. Some companies, such as Enron, can go bankrupt and lose all of their value.

Common stock represents ownership of a company. Ownership of common stock gives the stockholder a proportionate interest in the company's assets, profits, and dividends. In the event of a takeover, each individual shareholder is entitled to a proportionate share of the takeover purchase price. Over time, as some realized profits are reinvested in the business, the value of each shareholder's investment can grow. At any point in time, the market value of a firm's common stock depends on many factors, including the company's current profitability, its growth prospects, interest rates, demand for the stock, and conditions in the overall stock market. Stocks appeal to long-term investors given their potential to provide competitive returns through dividends and capital gains. Over the long term, stocks have consistently offered investors the best opportunity to stay ahead of inflation and increase the value of their investment.

## Historical Performance

The numbers shown in Tables 1.1 and 1.2 represent more than simple illustrations of the growth created by compound interest. These numbers fairly reflect investment returns that have been earned over time on stock and bond investments in the United States. Consider the data provided in Table 1.3. Note that the average annual stock market return over the period 1950–2007 was 13.2 percent as represented by the S&P 500 Index. U.S. Treasury



### Do We Learn from Other Investors' Mistakes?

Diversification is a fundamental concept of finance. Similar to the old adage “don’t put all your eggs in one basket,” investors should spread their wealth among different securities and investment classes to reduce risk. Yet many investors appear to fail in this simple task.

One common mistake is that individual investors tend to hold more than one-third of their retirement plan wealth in the stock of their employer. Consider Enron employees. When Enron went bankrupt in 2001 and its common stock became worthless, many Enron employees lost both their jobs and most of their retirement plan assets. Literally hundreds of stories were printed and aired nationwide about the economic devastation that resulted. How did other employees around the country react? Before Enron went bankrupt, approximately 36 percent of private pension plan retirement assets nationwide were invested in their employer’s common stock. This allocation dropped by less than 2 percent over the next two years. Many employees

nationwide underappreciate the importance of retirement plan diversification, even in the wake of the Enron fiasco.

Professional investors also can fail to diversify, sometimes with disastrous results. Dozens of hedge funds run by professional managers have been shut down recently because they focused on narrow asset classifications—asset-backed mortgage securities. The 2007 implosion of two prominent Bear Stearns hedge funds, the Bear Stearns High-Grade Structured Credit Fund and the Bear Stearns High-Grade Structured Credit Enhanced Leveraged Fund, set off a wave of bankruptcies in the subprime lending market with ramifications that stretched from Wall Street to Main Street. Leading Wall Street financial institutions and home owners across America suffered hundreds of billions of dollars in losses. Nevertheless, many individuals and professional investors have not learned from these mistakes and fail to diversify their portfolios.

While some investors learn from their own mistakes, it appears much more difficult to learn from the mistakes of others.

*See: James J. Choi, David Laibson, and Brigitte Madrain, “Are Empowerment and Education Enough? Underdiversification in 401(k) Plans,” *Brookings Papers on Economic Activity*, no. 2 (2005), pp. 151–213.*

**Returns on Common Stocks, Treasury Bonds, and Treasury Bills, 1950–2007** *In the long run, investor returns on common stocks have greatly outperformed the returns on long-term Treasury bonds and short-term Treasury bills.*

**TABLE**

**1.3**

Year	Common Stocks (S&P 500)	Long-Term Treasury Bonds	U.S. Treasury Bills
1950	31.7%	0.06%	1.2%
1951	24.0	-3.93	1.6
1952	18.4	1.16	1.8
1953	-1.0	3.64	1.9
1954	52.6	7.19	1.0
1955	31.6	-1.29	1.8
1956	6.6	-5.59	2.7
1957	-10.8	7.46	3.3
1958	43.4	-6.09	1.8
1959	12.0	-2.26	3.4
1960	0.5	13.78	2.9
1961	26.9	0.97	2.4
1962	-8.7	6.89	2.8
1963	22.8	1.21	3.2
1964	16.5	3.51	3.5
1965	12.5	0.71	4.0
1966	-10.1	3.65	4.9
1967	24.0	-9.18	4.3

(Continued)



## TABLE

## 1.3

Returns on Common Stocks, Treasury Bonds, and Treasury Bills, 1950–2007 *continued*

Year	Common Stocks (S&P 500)	Long-Term Treasury Bonds	U.S. Treasury Bills
1968	11.1	-0.26	5.3
1969	-8.5	-5.07	6.7
1970	4.0	12.11	6.5
1971	14.3	13.23	4.3
1972	19.0	5.69	4.1
1973	-14.7	-1.11	7.0
1974	-26.5	4.35	7.9
1975	37.2	9.20	5.8
1976	23.8	16.75	5.0
1977	-7.2	0.69	5.3
1978	6.6	-1.18	7.2
1979	18.4	-1.23	10.0
1980	32.4	-3.95	11.5
1981	-4.9	1.86	14.0
1982	21.4	40.36	10.7
1983	22.5	0.65	8.6
1984	6.3	15.48	9.6
1985	32.2	30.97	7.5
1986	18.5	24.53	6.0
1987	5.2	-2.71	5.8
1988	16.8	9.67	6.7
1989	31.5	18.11	8.1
1990	-3.2	6.18	7.5
1991	30.6	19.30	5.4
1992	7.7	8.05	3.5
1993	10.0	18.24	3.0
1994	1.3	-7.77	4.3
1995	37.4	31.67	5.5
1996	23.1	-0.93	5.0
1997	33.4	15.08	5.1
1998	28.6	13.52	4.8
1999	21.0	-8.74	4.7
2000	-9.1	20.11	5.9
2001	-11.9	4.56	3.5
2002	-22.1	17.17	1.6
2003	28.7	2.06	1.0
2004	10.9	7.70	1.4
2005	4.9	3.05	3.1
2006	15.8	1.85	4.7
2007	3.5	9.80	4.4
<b>Average</b>	<b>13.2%</b>	<b>6.4%</b>	<b>4.9%</b>
<b>Median</b>	<b>15.1%</b>	<b>3.6%</b>	<b>4.7%</b>

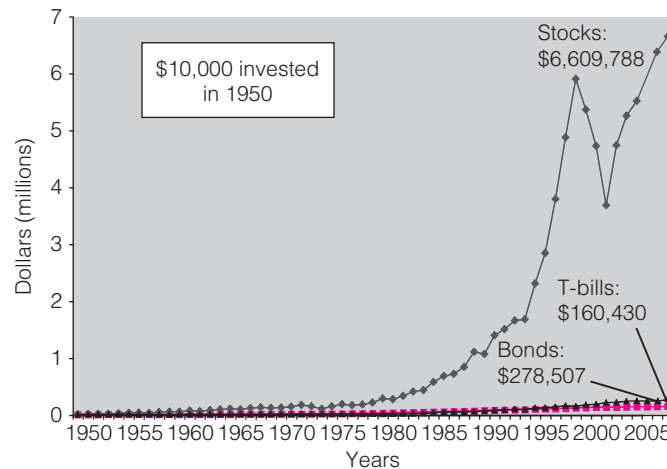
Source: Council of Economic Advisors, *Economic Report of the President*, February 2008, and Lehman Brothers.



## Building Wealth by Investing in Stocks, Bonds, and Treasury Bills, 1950–2007

## FIGURE 1.3

*In the long run, investor returns on common stocks have greatly outperformed returns on long-term Treasury bonds and short-term government obligations (U.S. Treasury bills).*



Source: Council of Economic Advisors, *Economic Report of the President*, February 2008, and Lehman Brothers.

bonds earned an average 6.4 percent return. The highest return in the stock market was in 1954, when it earned 52.6 percent. In that year, the bond market earned 7.19 percent. The worst year in the stock market was 1974, when it dove  $-26.5$  percent. The bond market earned a 4.35 percent return that year. The best and worst years in the bond market were 1982 and 1967, when it earned 40.36 percent and  $-9.18$  percent, respectively.

A 12 percent rate of return is commensurate with the rate of return earned on broadly diversified portfolios of stock market investments since World War II. In other words, a broadly diversified portfolio of common stocks could be expected over the long term to earn the investor a 12 percent rate of growth. At the other end of the spectrum, a 6 percent rate of return is a typical average for long-term bond investors. This means that over an extended period of time, a broadly diversified portfolio of high-grade bonds could be expected to yield investors a rate of interest on the order of 6 percent. Between these two extremes of 6 and 12 percent is the 9 percent rate of return typically earned by mutual fund investors. Mutual funds typically own a blend of stocks and bonds and must pay the trading and management costs involved with running a mutual fund. As a result, they return investors about 9 percent, on average, or roughly 3 percent below the return earned on broadly diversified portfolios of common stocks. Figure 1.3 shows the cumulative value of \$10,000 invested in 1950 in stock, bonds, and T-bills.

Just because the performance shown in Figure 1.3 was available to investors does not mean that all investors achieved such returns. Many individual investors make decisions that are influenced by their emotions and psychological biases. They do not gain enough confidence in the stock market until after the market has risen for a long period. After investing, if the market declines for a while, many investors become discouraged and sell. These behaviors lead to buying high and selling low (see Figure 1.1). This is not the way to build wealth! To achieve the average 12 percent return, an investor needs to invest in equities and have the discipline to stay in the market even after it has fallen.

Simple illustrations of the amazing growth resulting from compound interest provide a helpful introduction to the nature of investing. It's not the whole story, but it's a useful beginning. Investing is about money. It is not just about accumulating money and helping it grow. It is about how people feel about money. Therefore, the theory of investing involves economics and psychology. Wall Street is an interesting place that is well worth studying.

## Investment Objectives

### Investing for Retirement

By studying investment theory and behavior, it becomes possible to assess the returns needed and select the appropriate assets. Saving money for a down payment on a home is a perfect example. Using high-yield money market instruments, individual savers can often increase the interest earned over that from certificates of deposit offered by commercial banks or savings and loan institutions. Effective selection of stock and bond investments is an important consideration for all investors seeking to improve their chances for a satisfactory retirement income. Thirty years ago, it was common for individual companies to offer employees **defined-benefit retirement plans**. Under a defined-benefit retirement plan, employers promise employees a fixed retirement income computed using a formula that includes the number of years employed multiplied by the last year's salary. In this plan, it is the employer's responsibility to fund the retirement program and invest the portfolio.

Over time, defined-benefit plans in the United States have been abandoned in favor of what are called **defined-contribution retirement plans**. Under a defined-contribution retirement plan, the amount the employees accumulate in their retirement portfolios determines individual employee retirement income. Assume that an individual investor contributes \$6,000 per year, or \$500 per month, into their retirement plan with a major employer. If those funds are invested in bonds to earn a return of 6.4 percent per year, that employee would accumulate \$230,443 over a 20-year period. Instead of investing in a broadly diversified bond portfolio earning 6.4 percent per year, consider the possibility of investing in common stocks yielding 13.2 percent. In common stocks returning 13.2 percent per year over a period of 20 years, a total retirement portfolio of \$497,178 would accumulate. Having chosen common stocks rather than bonds, the employee would be able to fund a much higher level of retirement income than that afforded by the bond investment.

Because employees increasingly have defined-contribution retirement plans instead of defined-benefit plans, it is necessary that they themselves accept responsibility for the management of their retirement assets. Under a defined-contribution retirement plan, the employer accepts no responsibility for the amount accumulated in an individual employee's retirement account. If the individual employee fails to understand the fundamental relationships between risk and expected return, and the pluses and minuses of stock and bond investing in the long run, the individual is apt to pay a startling cost in terms of reduced retirement income.

### Investing to Meet Other Financial Goals

Of course, the importance of learning about investing extends beyond the need for intelligent retirement planning. Many parents also wish to help children afford a quality college education. Carefully selected stock and bond investments can make an important contribution toward paying the costs of college education, especially when an extended investment horizon is possible.

For example, if parents of a newly born baby were to invest \$10,000 in a common stock portfolio returning 12 percent over a 20-year period, this would accumulate to \$96,463. This is an amount sufficient to carry a large share of the expected costs of a private college education in America today. Alternatively, if parents of a newborn child were to contribute \$100 per month, or \$1,200 per year, over a 20-year period into a common stock portfolio returning 12 percent per year, the portfolio would grow to \$86,463. Again, this is an amount sufficient to pay a large share of the cost of an undergraduate education.

These simple examples illustrate that anytime an investor has a long-term financial goal, stock and bond investing can play a significant role in achieving that objective. From this standpoint, it is fair to say that all students have an important interest in learning as much as they can about investment theory and practice. Even small improvements in one's ability to manage a retirement portfolio, a college tuition portfolio, or any long-term investment can lead to significant rewards.

#### Defined-benefit retirement plan

Employer-funded retirement program in which the employer promises to pay the employee a fixed retirement income that depends on salary history and time employed.

#### Defined-contribution retirement plan

Employee-funded retirement program in which employees direct and contribute to their own retirement plans. Retirement income depends on employee success in investing.



## Stock Market Bubbles

The efficient-market hypothesis (EMH) states that every security at every point in time is fairly priced (see Chapter 6). Some would argue that a stock market bubble offers evidence against the EMH. A stock market bubble is said to occur when stock prices dramatically rise for a time and then seem to suddenly collapse.

Consider two modern stock market bubbles. One occurred in Japan, the other in the United States. The Japanese stock market experienced a dramatic rise in the 1980s. The Nikkei began 1984 near 10,000 and peaked in 1989 nearly four times higher. Then, in nine months, the Japanese market fell by roughly 50 percent to 21,000. More than a decade later, the Japanese stock market languished near 10,000, or down roughly 75 percent from the 1989 peak. Given subsequent performance, it seems improbable that the Japanese stock market was fairly valued in 1989.

The run-up and subsequent crash of technology stocks in the United States is another example of a stock market bubble. As early as December 1996, Federal Reserve Bank Chairman Alan Greenspan warned investors about “irrational exuberance.”

Yet the rally continued to accelerate. For example, the TSC Internet Index provided by [TheStreet.com](http://TheStreet.com) was at 569 on March 9, 1999. One year later, the index had risen 134 percent to 1,333. Then the index fell –81 percent to 249 on March 9, 2001, and it stood at 85 on March 10, 2003.

The dramatic rise and crash of Japanese equities and U.S. Internet stocks provide evidence that stock markets can be extremely volatile. From a financial perspective, stock market investors need to understand the source of such volatility. The EMH suggests that the underlying economic worth of such companies must have rapidly improved and later deteriorated. Critics of the EMH contend that such stock market volatility is simply too great to be fully explained by changes in economic fundamentals. According to the critics, stock prices deviate too much from fundamental values during “bubble” periods. Investor emotions, rather than economic fundamentals, may represent the driving force behind excessive stock market volatility during bubble periods.

See: Edward Hadas, Richard Beales, and Rob Cox, “Think Bubble Trouble Is Over? Keep an Eye on Commodities,” *The Wall Street Journal Online*, March 25, 2008 (<http://online.wsj.com>).

## Investing Is Not a Game

Investors frequently behave as if investing were a game. Indeed, it often does seem like a competition. Investors compare their own returns to those they see on TV, read about in the newspaper, and hear from their neighbors and friends. The media enhance this atmosphere by continually ranking the performance of investments (such as mutual funds, hedge funds, and individual stocks). This gamelike environment causes investors to focus on the short term and keep asking “How am I doing *now*?” Unfortunately, this short-term focus leads to psychological and emotional traps and investment blunders. The real challenge is that of achieving your financial goals. If you achieve the goals, you win! Yet how can you avoid being influenced by the game-like environment? People who know how to use quantitative investment methods can use these techniques to make good decisions. People who do not know financial theory must rely on their psychological biases to help make decisions. Making decisions through sound financial theory and avoiding biases and emotions will set you on the road to investment success.

## Theory of Finance

### Theory as a Road Map

Today, many novice investors are primarily concerned with two simple questions. The first is: How do you access investment information? The Internet and traditional financial publications offer today’s investors a wealth of valuable investment information and analysis, often for free. A second common and important question is: How do you turn information into wisdom? This is where the theory of finance comes into play. Just as the effective practices of successful investors give clues about how to proceed, so too does investment theory provide a useful road map or context for analyzing investment problems. The road map provided by the theory of finance explains that economic forces determine the prices for stocks, bonds, and other assets such as real estate, art, collectibles, and so on. As demonstrated throughout this chapter, the first and most fundamental concept of investment is the idea of compound interest. Money grows over time according to economic fundamentals. Compound interest can create an astounding increase in the value of a company or investment over time.

## Key Investment Concepts

### Portfolio

Diversified collection of stocks, bonds, and other assets.

### Risk

Chance of a loss of wealth or a failure to meet investment goals.

### Expected return

Future return anticipated after analyzing the financial asset.

### Efficient-market hypothesis

Idea that every security is correctly priced, not overvalued or undervalued.

In addition to the compound-interest concept, another key idea in investment theory is the concept of a **portfolio**, a diversified collection of stocks and bonds or other assets. An investor's intent in creating a portfolio of assets is to provide the basis for a predictable rate of return. Portfolio theory tells us that diversification has the potential to reduce anticipated risk for a given expected return. Each individual firm has various influences that affect its risk. Firm-specific risk is tied to the chance that a key executive might leave the firm, important products might lose out to new competitors, or vital brand names might be lost. Through an investment portfolio, firm-specific risks tend to cancel out.

A further fundamental investment theory is the idea that **risk** and **expected return** are related. The price of higher expected return is greater anticipated risk. This means that if low-risk U.S. Treasury bills yield 6 percent interest, bonds that yield more than 6 percent per year are, by definition, not Treasury bills. If you want to earn higher than risk-free rates of return, you must be willing to assume higher levels of risk. The importance of recognizing the relationship between risk and expected return is that, holding the length of the investment horizon constant, higher expected return is typically accompanied by greater volatility. The variation in annual stock returns compared to bond returns shown in Table 1.3 illustrates this point.

Another key investment concept is the **efficient-market hypothesis**, which states that every security at every point in time is fairly priced. Prices are neither too low (undervalued) nor too high (overvalued). This is quite a controversial theory. Proponents of the hypothesis point to the fact that the average professional investor does not beat the market. Studies show that as many as 90 percent of professionally managed mutual funds and pension funds underperform the broad market averages over periods of time as short as 10 years. On the other hand, opponents of the theory point to the success of a few investment superstars. These investors have trounced the market over very long periods of time.

## Analysis and Behavior

### Investment Superstars

The typical investor cannot expect to beat the market averages. To consistently outperform, it takes a superstar. In the investment management business, it takes a superstar such as Warren Buffett, Bill Miller, or Sir John Templeton. In major league baseball, it takes a superstar such as Álex Rodríguez, who earns extraordinary compensation derived from his ability to hit home runs. The fact that Rodríguez makes millions of dollars per year does not mean that it is easy to make millions playing baseball. His extraordinary returns reflect his exceptional ability as a power hitter. Similarly, extraordinary returns for investment superstars, such as Warren Buffett, reflect superior ability to hit the ball out of the investment park.

Omaha-based Warren Buffett, chairman and chief executive officer of Berkshire Hathaway, looks for wonderful businesses selling at reasonable prices. A wonderful business is one that generates a high rate of profit for the amount of money committed to the enterprise. In terms of accounting information, the **return-on-equity** measure is the best available indicator of the firm's ability to profitably use operating and financial leverage. The return on equity is simply the ratio of net income divided by stockholders' equity, or book value per share. On average, return on equity falls in the range of 10 to 12 percent per year for the broad cross section of businesses in the United States. Firms that consistently earn less than 10 to 12 percent find that raising new funds for expansion and improvement becomes difficult. As a result, low-profit firms are forced to either improve their operations or shrink and retrench. To attract additional funds for expansion, firms must offer above-average rates of return. Because of competition, sustaining a high return on equity for a long period of time is hard. Firms with a history of high profits tend to earn lower rates of return over time as they commit more and more capital to the enterprise. Alternatively, low-profit firms see their profit rate rise over time as investors redeploy funds to other more profitable uses. The tendency of profit rates to return toward long-term industry and economywide averages is called **regression to the mean**.

### Return on equity

Accounting net income divided by stockholders' equity, or book value per share.

### Regression to the mean

Tendency of profit rates to return toward long-term industry and economywide averages.

When Buffett looks for wonderful businesses that are highly profitable, he is looking for companies that consistently earn 20 to 25 percent, or higher, rates of return on stockholders' equity. When Buffett says he is looking for stocks selling at reasonable prices, he is looking for companies whose price does not already reflect the company's superior profitability. A *reasonable price* is usually defined in terms of the **price-earnings (P/E) ratio** paid, where *P/E* is defined as the market value of the firm divided by net income. On a per-share basis, *P/E* is the company's stock price divided by earnings per share. A *P/E* of 20 means that the stock price is 20 times higher than each dollar of earnings per share. A *P/E* of 20 implies that the firm has five cents in earnings for each dollar of market value. Buffett finds these firms in mundane and unglamorous industries, such as insurance, gas pipelines, and furniture retailers.

**Price-earnings (P/E) ratio**  
Stock price divided by earnings per share.

Another legendary investor is Bill Miller, chairman and chief investment officer of Legg Mason Capital Management. As portfolio manager of the Legg Mason Value Trust mutual fund, Miller outperformed the S&P 500 index for 15 consecutive years from 1991 through 2005—a record of consistent superiority that was thought to be impossible according to efficient market theorists. Miller is legendary for his focus on investment fundamentals and keen appreciation for the role played by investor psychology. Miller follows a value approach by purchasing large-capitalization stocks at big discounts to his assessment of their intrinsic value. In valuing companies, Miller looks at the present value of future cash flows and for securities that are temporarily out of favor with investors.

A third legendary investor of recent years is Sir John Templeton of the Franklin-Templeton group of mutual funds. Templeton is known as the “father of global investing.” He promoted searching far and wide for the best bargains available. In Templeton's opinion, the best stock market bargains are companies selling at low prices relative to their book value of tangible assets. This means that Templeton looked for companies that sell at a cheap price relative to the company's book value per share. Templeton's reasoning was that firms tend to grow earnings when book value grows, and as book value grows higher, share prices will follow.

In all three cases, successful investors Warren Buffett, Bill Miller, and Sir John Templeton have profited by considering stocks as part ownership in the company's underlying businesses. Notice that they don't think of stocks as a simple piece of paper; they don't use trading rules that favor stocks that are going up or stocks that are going down. Instead, they seek to develop an independent judgment of what a company is worth on the basis of its economic prospects compared with those of companies in general. In considering the development of their own stock-selection techniques, individual investors would be well advised to consider the underpinnings of the historical success enjoyed by these legendary investors.

## Asset Valuation

How do investment superstars value stocks? While individual techniques vary slightly, a recurring theme is that investment superstars value stocks on an economic basis in terms of the prorated value of the underlying business.

Consider the example shown in Table 1.4. This example illustrates the economic rate of return and economic value of 1 acre of Iowa farmland. For simplicity, assume that such a parcel is able to generate 150 bushels of corn and that the price of a bushel of corn is \$4. This means that \$600 in revenue would be generated from corn raised on this 1 acre of Iowa farmland. Furthermore, assume that planting and tillage costs, seed and fertilizer costs, harvesting costs, taxes, and so on, total \$330 per acre. This means that gross profit per acre is \$270. To yield a 6 percent rate of return, an investor would pay no more than \$4,500 per acre ( $= \$270 \div 0.06$ ). This means that the economic value per acre of such land is \$4,500. Of course, \$4,500 is a very high price for farmland. It reflects the fact that Iowa farmland is among the most productive of all agricultural land in the world. If the land were less productive, it would sell at a much lower price.

Because of the high cropland productivity, investors who demand a 6 percent rate of return can pay up to \$4,500 per acre. If an investor could buy such farmland for \$2,700 per acre, he would scoop it up because it would then produce a 10 percent return ( $= \$270 \div \$2,700$ ). That would be a heck of a deal. If someone came along, borrowed a bunch of cash, and bid up the price to \$8,000 per acre, they would go broke. Such farmland will not support a price of



## TABLE

## 1.4

## Economic Value of Iowa Farmland

Bushels of corn produced per acre	150
Price of corn per bushel	× \$4.00
Total revenue per acre	\$600
Planting, tillage costs	-105
Seed and fertilizer costs	-70
Harvesting costs	-125
Taxes, insurance, etc.	-30
Gross profit per acre	\$270
Interest rate	6%
Economic value per acre	\$4,500

\$8,000 an acre for agricultural use. The simple fact is there is an economic value underpinning that farmland.

It is the same with stocks. Sometimes, inexperienced investors bid up the price of an Internet stock, assuming that revenues, earnings, and book values don't matter. For brief periods of time, sometimes they do not. This is especially true when there is a lot of uncertainty. However, in the long run, revenues, earnings, and book values matter a great deal. If earnings for very high-price biotech stocks absolutely explode to the upside over the next few years, their current stock prices will be justified. They may even rise. If earnings of those companies do not explode, those stocks are going to get crushed. In the long run, investors can do no better than the company in which they have invested. If the company prospers, so will its investors. If the company fails to generate above average profits, its investors will not be able to earn above average rates of return.

The fundamental point is that the value of a financial asset, such as farmland, is determined by economic considerations. This is the same for the value of stocks, bonds, and investments of all types. The value of any asset depends on how much profit is generated and the rate of interest the investor demands. The most successful investors of our time look at stocks and bonds in much the same way that a farmer would look at investing in real estate.

## Behavior of Stock Market Participants

The stock market can be thought of as a system of human interaction. Every part of the investment process includes people interacting with one another. Investors exchange information and discuss stocks with neighbors, relatives, friends, and colleagues. Investors seek advice from advisors, analysts, bankers, and planners. Buy and sell trades are communicated to brokers who send the trades to dealers, specialists, and traders at the stock exchanges.

Differences between short-term and long-term objectives sometimes create conflicting **incentives**. For example, stockbrokers can have a long and successful career by providing good advice to clients and creating relationships built on trust. However, since a broker's pay derives from trading commissions, creating an environment where clients are induced to make many trades can increase the broker's short-term income. As a result, the clients' trading behavior can be influenced by the stockbroker's short-term incentives. Similarly, consider the incentives of a mutual fund manager. Mutual fund investors flock to outperforming funds. The additional money invested in the fund increases the manager's salary. If a fund manager is underperforming in the first half of the year, the manager faces strong incentives to take on added risk and play "catch-up" during the latter half of the year. Alternatively, a manager who has beaten competitors during the first half of the year may become overly conservative so as not to risk a leadership position. As a result, short-term incentives can adversely affect mutual fund manager performance.

### Incentive

Financial reason for inciting an action.



## Corporate Governance

The corporate form of business organization allows for the effective coordination of many small investors in a large enterprise. Sometimes an “agency problem” emerges between the owners of the corporation (stockholders) and management (so-called agents). When top management make corporate decisions that benefit themselves at the expense of stockholders and creditors, an agency problem results. Indeed, it can be easy to find stories in the business and popular press about CEOs who make tens of millions of dollars per year while stock prices languish and bondholders face credit downgrades. Worse yet, instances of extreme corporate malfeasance—including accounting fraud, option backdating, and abusive tax shelters (tax dodging)—are far too common.

To combat such problems, a system of corporate governance has evolved that includes mechanisms inside and outside the firm to monitor and enhance corporate performance. The most important corporate governance mechanism is the board of directors, a group legally charged with governing the corporation. Incentive-based pay for top management, including significant stock ownership, is also important. Managers with a significant ownership interest have an obvious incentive to run the firm efficiently. Similarly, when ownership is concentrated among a small group of large and vocal institutional shareholders,

managers often have strong incentives to maximize corporate performance. When the company’s common stock is widely dispersed among a large number of small individual investors, top management can sometimes become insulated from the threat of stockholder sanctions following poor operating performance.

Corporate governance mechanisms outside the firm also help to establish an optimal set of restrictions on corporate activity. Franchise agreements give local companies the limited right to offer goods or services developed or advertised on a national basis and are especially popular when customer service is crucial and the performance of local managers is hard to measure. Strategic alliances are preferred corporate governance mechanisms when cultural differences between partners are great. Independent auditors, the stock exchanges, state and federal regulators, and rules and regulations also play important roles as corporate governance mechanisms that exist outside the firm.

Despite obvious problems, the popularity of the modern corporation stems from the fact that it represents an extremely effective means of business organization. Corporate governance is typically efficient, but investors need to beware of the potential for abuse and incompetence.

See: The Corporate Library ([www.thecorporatelibrary.com](http://www.thecorporatelibrary.com)) to read about current issues in corporate governance.

In addition to differences in personal incentives, investment decisions are also affected by **investor psychology**. Investors make investment decisions before outcomes are certain. Psychologists have found that as decisions become more difficult and involve higher levels of uncertainty, the decisions tend to be more greatly influenced by emotions and feelings. For example, investors are reluctant to sell a stock at a loss. They often want to hold a stock until it goes back up to the price they paid for it no matter how long it takes! Such a decision is based not so much on the opinion that the stock is a great investment opportunity but more on the desire to avoid that awful feeling associated with admitting a mistake. Also, people tend to invest in assets they believe are better than alternatives. By “better,” they seem to believe they have low risk and they expect a higher return. Belief in low risk and high return goes against basic finance theory—high risk is associated with high expected return.

Successful investors are able to understand and overcome these adverse psychological influences. This is especially true when crowd psychology influences the overall market, as was the case during the late-1990s Internet stock bubble in the United States and the Japanese stock market bubble of the late 1980s. Outbreaks of crowd behavior, typified by “extraordinary popular delusions and the madness of crowds,” are occasionally observed in various markets—and are especially dangerous to investor wealth.

### Investor psychology

The reasons, emotions, and perceptions of the human brain as they pertain to investments.

## Information—A Key to Investment Success

### Financial Information on the Web

The ability to obtain good information may be the most important determinant of investor success. After all, the quality of a decision is only as good as the quality of the information used in the decision-making process. Investors often seek **stock quotes** in **real time**, for example, several times during the trading day. When it comes to financial news and information, the Internet is a powerful tool.

### Stock quote

Offer to buy and sell shares at specific prices.

### Real time

Up-to-the-minute, current stock quote.



## TABLE

## 1.5

## Where to Get Investment Information

Information Source	Internet Address	Description
<b>Web-Based Sources</b>		
Bloomberg.com	<a href="http://www.bloomberg.com">www.bloomberg.com</a>	Concise reporting of news and information affecting stock and bond markets worldwide.
Daily Stocks	<a href="http://www.dailystocks.com">www.dailystocks.com</a>	Provision of many tools used in technical analysis. Stocks can be found by sorting on momentum, daily highs and lows, etc. Price charts are available.
MarketWatch	<a href="http://www.marketwatch.com">www.marketwatch.com</a>	Focus is financial news and information. Individual investors can find news, commentary, advice, and stock price information.
Morningstar.com	<a href="http://www.morningstar.com">www.morningstar.com</a>	Comprehensive mutual fund commentary and analysis.
The Motley Fool	<a href="http://www.fool.com">www.fool.com</a>	An online forum designed to “educate, amuse and enrich investors.” A constant stream of witty investment advice spills over to active message boards.
MSN Money	<a href="http://moneycentral.msn.com">moneycentral.msn.com</a>	Investing highlights for customized portfolios, market reports, mutual fund directory, retirement and wills, taxes, real estate, smart buying, insurance, etc.
Standard & Poors	<a href="http://www2.standardandpoors.com">www2 .standardandpoors.com</a>	The place to find information about S&P equity index methodology, fixed-income ratings, products, and services. View detailed information about the S&P indexes, including returns over various periods plus fundamental characteristics and sector weights for any date back to index inception.
TheStreet.com	<a href="http://www.thestreet.com">www.thestreet.com</a>	A full menu of stock analysis, market commentary, and biting satire.
U.S. Securities and Exchange Commission	<a href="http://www.sec.gov">www.sec.gov</a>	The place to find free access to official SEC filings by individual companies, obtain information about individual brokers, or file a complaint about shady business practices.
ValueLine.com	<a href="http://www.valueline.com">www.valueline.com</a>	The place that publishes more than a dozen print and electronic products utilized by more than half-a-million investors. It is best known for the Value Line Investment Survey, the most widely used independent investment service.
Yahoo! Finance	<a href="http://finance.yahoo.com">finance.yahoo.com</a>	A terrific Web site with U.S. markets, world markets, quotes, financial news, message boards, chat, etc. Organize your news (life) with my.yahoo.com.
<b>Newspapers</b>		
<i>Barron's</i>	<a href="http://www.online.barrons.com">www.online.barrons.com</a>	Biting market commentary once a week, portfolio analysis, and data bank.
<i>Investor's Business Daily</i>	<a href="http://www.investors.com">www.investors.com</a>	Stock picking, charting, and momentum strategies dispensed by founder William O'Neal. It is big on investor education.
<i>The Wall Street Journal</i>	<a href="http://online.wsj.com">online.wsj.com</a>	The daily paper when it comes to financial news and information. Print subscribers get interactive access at a bargain price.
<i>USA Today</i>	<a href="http://www.usatoday.com/money">www.usatoday.com/money</a>	“McPaper's” Money Section provides business, economic, and financial news. Don't underestimate it's terrific!
<b>Business Magazines</b>		
<i>BusinessWeek</i>	<a href="http://businessweek.com">businessweek.com</a>	Timely business news and analysis, tech center, and useful business school, career, and small business information.
<i>The Economist</i>	<a href="http://www.economist.com">www.economist.com</a>	Analysis and opinion on the business and political events of the week offered.
<i>Forbes</i>	<a href="http://www.forbes.com">www.forbes.com</a>	Provides terrific commentary on economics and financial markets from an all-star stable of regular columnists as well as stimulating reviews of companies and mutual funds.
<i>Fortune</i>	<a href="http://money.cnn.com/magazines/fortune">money.cnn.com/ magazines/fortune</a>	Famous site for Fortune 500 company list; gives interesting advice on career development.
<b>Personal Finance Magazines</b>		
<i>Kiplinger's Personal Finance</i>	<a href="http://www.kiplinger.com">www.kiplinger.com</a>	Practical guidance on saving, investing, planning for retirement, and major purchases provided.
<i>Money</i>	<a href="http://money.cnn.com">money.cnn.com</a>	Interesting market commentary, as well as company and mutual fund analysis aimed at novice investors; lots of personal finance advice.
<i>SmartMoney</i>	<a href="http://www.smartmoney.com">www.smartmoney.com</a>	Site that serves the need for personal finance information for affluent, sophisticated, professional, and managerial Americans.

Table 1.5 shows a number of leading Web sites for investment information. Market-Watch, for example, is among the best at focused financial news and information. This Web site has excellent stock price and volume information as well as pertinent financial data on individual companies, industries, and the overall economy. The site also offers late-breaking news tied to individual companies on a real-time basis. This gives today's individual investors more detailed and timely information than Wall Street professionals enjoyed until recently.

The best free Web site for government reports filed by individual companies is called **EDGAR**. Experienced investors know that if you want complete details about SEC reports for an individual company, all you have to do is “ask EDGAR.” EDGAR is an acronym for Electronic Retrieval Analysis System for SEC filings. It is a for-profit company that specializes in providing investor access to SEC reports and filings. For example, if you want the latest quarterly report on Microsoft Corporation, go to the EDGAR Web site and key in “MSFT,” which is the four-letter **ticker symbol** for Microsoft. EDGAR will provide a plain-text report of Microsoft's most recent quarterly accounting earnings information or the Schedule **10Q report**. Other important bits of information available on EDGAR include the firm's Schedule **10K report**, or annual financial report, and the company's Schedule 14A **proxy statement**, or annual meeting announcement. The annual meeting announcement is a very interesting document because it includes information about top management, members of the board of directors, and other large investors in the firm. The proxy statement also tells how much company stock is owned by management and the board of directors.

An entity makes Schedule **13D** filings to the SEC within 10 days of the entity's attaining a 5 percent or more position in any class of a company's securities. Any subsequent change in holdings or intentions must be reported on an amended filing. **SEC Form 144** filings must be submitted by holders of restricted securities, sometimes called *letter stock*, who intend to sell shares. Note that 144 filings are only notices of intentions to sell shares; sometimes these shares aren't sold even though the owner has filed a Form 144. Small investors have easy access to this information on the SEC Web site (through EDGAR) and in leading financial publications such as *Barron's*.

## Financial Newspapers

Another important source of financial news and information is the traditional financial press. Like many businesses, the financial press is quickly migrating to the Internet. In fact, the financial press is probably ahead of the curve because magazine and newspaper publishers have witnessed firsthand the rapid growth of Internet portals such as Yahoo!. Table 1.5 shows a number of important print media outlets for investment information.

Of course, the first and most important source of daily Wall Street information is *The Wall Street Journal*, published by Dow Jones, Inc. *The Wall Street Journal* is the stock and bond investor's daily newspaper when it comes to financial news and information. You can get online access to *The Wall Street Journal* at a bargain price. On the Internet Web site for *The Wall Street Journal Online*, you can read tomorrow's headlines for the print version. *The Wall Street Journal Online* is an extremely useful tool for news and information searches on individual companies. As you may already know, in each day's print version of *The Wall Street Journal*, typically on page B2, is a company index that lists all firms mentioned in the news stories. If you want to find information about Intel, for example, you can quickly turn to the specific pages that contain news, articles, or other information pertinent to Intel investors. *The Wall Street Journal* is a “must read” for investment professionals.

### EDGAR

Electronic Retrieval Analysis System for SEC filings.

### Ticker symbol

Unique one-, two-, three-, or four-letter code for any company.

### 10Q report

Quarterly accounting information filed with the SEC.

### 10K report

Annual accounting information filed with the SEC.

### Proxy statement

Annual meeting announcement and shareholder voting information.

### 13D

Filings made to the SEC within 10 days of an entity's attaining a 5 percent or more position in any class of a company's securities.

### Form 144

Filings submitted to the SEC by holders of restricted stock who intend to sell shares.

## Try It!

Using *The Wall Street Journal* index on page B2, find all stories related to General Electric. If you have access to the *WSJ Online*, search for articles related to General Electric.

## Financial Periodicals

Another source of useful investment information is *Barron's* financial weekly, also published by Dow Jones, Inc. It is a sister publication to *The Wall Street Journal*. *Barron's* is a financial weekly published on Saturdays, whereas *The Wall Street Journal* comes out on a daily basis. Because it is a weekly, *Barron's* focuses on market commentary and portfolio analysis rather than company-specific news.

*Barron's* is a top source for information about trends in technology stocks, the mutual fund industry, and investing in general. Each week's issue features a wealth of market commentary about movements in interest rates and stock prices in the United States and in foreign markets, such as Asia, as well as industry-specific news and information. One of the most useful features of *Barron's* is its weekly "market laboratory" of investment statistics. This laboratory gives a host of financial statistics, data, and valuation ratios on stocks, bonds, credit conditions, and the economy.

*BusinessWeek* is another top source for financial news and information. *BusinessWeek* is a good source for timely business news and analysis and for technical information on individual sectors of the economy. It even has information about top business schools. For example, its once-a-year survey of business schools gives readers timely information about admission standards, quality, and strengths of various business schools around the country. *BusinessWeek* is also a top source of information about careers and small business opportunities.

Another favorite for financial news, analysis, and commentary is *Forbes* magazine. *Forbes* gives biweekly commentary on economics and the financial markets from an all-star stable of regular columnists. It also offers a stimulating review of individual companies, big and small business, and mutual funds. Portfolio strategy is a focus of financial columnists in every issue. Many who subscribe to *Forbes* for its financial news and information focus on the financial columnists, such as portfolio manager David Dreman, who give on-the-spot analysis of market trends.

*Fortune* magazine is another timely source of financial news and information. This biweekly publication is most famous for its Fortune 500 list of the 500 largest companies in the United States. The original list of 500 top industrials (according to sales) has been expanded. Today, *Fortune* covers the top 500 companies in America, along with the second 500, the so-called Fortune 1000. The magazine also covers global corporations. *Fortune* is an interesting source for information about career opportunities as well as trends and strategies followed by the management of top corporations. *Money* and *SmartMoney* are two quality personal finance magazines with full Web page support.

## Employment Opportunities as an Investment Professional

### Financial Job Market Overview

Everyone has a practical interest in compiling sufficient wealth for a comfortable retirement, so investment is a practical subject for all students. In addition, many students seek to earn a productive and exciting living in the investment field. Employment opportunities in financial services are expected to grow rapidly in the years ahead. In addition, the amount of financial sophistication demanded of finance specialists and nonspecialists is also expected to rise. For example, corporate treasurers and chief financial officers must understand financial theory and practice if they are to efficiently finance firms' growth needs. This includes accessing the capital markets. Personnel and human resource heads also need to understand investment theory and practice to help employees with an increasingly complex array of retirement plans. In addition to such opportunities for improved job market prospects in financial and nonfinancial occupations, the investment industry itself offers a growing number of career opportunities.

**Career Opportunities in the Investment Field** *Employment and career opportunities in the financial services industries are expected to grow rapidly in the years ahead. In addition, the amount of financial sophistication demanded of nonspecialists is also expected to rise. For example, personnel in human resource departments increasingly need to understand investment theory and practice in order to help employees with an increasingly complex array of deferred benefits, such as 401k plans, and retirement investment opportunities.*

## TABLE

1.6

Kind of Business	Number of:		Payroll (\$ billions)	Average Pay
	Establishments	Employees		
Commercial banking	83,000	1,631,000	80.7	\$ 49,479
Savings institutions	16,400	249,000	12.0	48,193
Credit unions	16,000	229,000	7.7	33,624
Nondepository credit institutions	54,000	733,000	45.5	62,074
Real estate credit	24,900	361,000	24.5	67,867
Credit intermediaries	38,900	343,000	16.1	46,939
Investment banking	6,000	137,000	31.1	227,007
Securities brokerage	42,500	517,000	76.5	147,969
Securities and commodities exchanges	100	7,000	0.8	114,286
Portfolio management	13,200	159,000	27.9	175,472
Direct life insurance carriers	8,900	373,000	24.1	64,611
Direct health and medical insurance carriers	3,900	426,000	25.7	60,329
Direct property and casualty insurance	13,400	586,000	34.3	58,532
Insurance agencies and brokerages	127,700	689,000	33.7	48,911
Mutual funds and trusts	3,300	32,000	2.6	81,250

Source: U.S. Census Bureau, *Statistical Abstract of the United States, 2008*, Table 1135.

Table 1.6 shows a variety of employment opportunities in the financial services industry. Employment opportunities are most numerous with commercial banks, savings institutions, insurance carriers, and real estate companies. With respect to banks and savings institutions, many career opportunities in the investment field involve simple information processing. Nevertheless, many banks and savings institutions are moving toward offering financial planning and investment advice. Insurance companies offer a wide variety of career opportunities for executives interested in designing variable- and fixed-annuity products for sale to individual and institutional investors. Insurance companies hold large investment portfolios as reserves against potential disasters that require large benefit payouts. Investment professionals manage these portfolios.

The real estate industry is also a prime employer of personnel with an investment background. Of course, most of the people employed in the real estate industry are directly involved with customers in terms of buying and selling homes or commercial properties. There are additional job opportunities for others involved in the administration end of the business. Last, even state and local governments hire investment professionals to run their public pension plans.

## Brokerage Business

One of the most interesting areas in the financial services sector is the stock brokerage business. A **stockbroker**, sometimes referred to as an *account executive*, usually works with individual investors and institutions in advising and executing orders for

### Stockbroker

Financial agent who assists investors with buying and selling financial assets.

individual common stocks or bonds. Although the broker may receive a base salary, it is common for the main part of a broker's compensation to come in the form of commission income.

In a typical arrangement, an individual broker might receive 35 to 50 percent of the total commissions generated. This means that if an individual broker generates gross commissions of \$200,000 per year, he will receive a gross income of between \$70,000 and \$100,000. At Merrill Lynch, for example, a typical broker earns in excess of \$100,000 a year. This means that the typical Merrill Lynch broker generates at least \$200,000 to \$285,000 in gross commissions per year. In an era when commission rates average 1 percent to one-half of 1 percent of the amount invested, this implies a tremendous amount of assets being administered by the account executive. To illustrate, consider the broker trying to earn \$100,000 in income. If the gross commission generated is 1 percent of the amount invested, the broker would need to have customers generating a minimum of \$20 million per year in assets under management. Generating and maintaining the customer base necessary to provide \$100,000 in brokerage income is a daunting task indeed.

You can be sure that the typical brokerage account executive is not only highly educated, bright, and talented but also extremely hardworking. All top financial firms devote significant resources toward making individual account executives successful. The vast majority of successful stockbrokers can attribute their success to providing high-quality advice to their clients. However, the compensation structure of the commission system can provide an incentive to stockbrokers to encourage trading rather than a buy-and-hold strategy. Periodically, you may hear about a broker initiating many trades in clients' accounts, sometimes without their permission. This is called **churning** and is done for the sole purpose of generating commissions. The brokers who do this eventually get caught and get fired.

### Churning

Illegal broker-initiated trading in client accounts to generate commission income.

### Security analyst

Finance professional who analyzes and makes recommendations regarding stocks and other financial assets.

### Portfolio manager

Finance professional in charge of making buy, sell, and hold decisions for a portfolio.

### Chartered Financial Analyst (CFA)

Professional designation for investment management, banking, and financial analysts.

### Certified Financial Planner (CFP)

Finance professional who helps individuals identify and meet financial needs.

## Investment Management

The most sought-after jobs in the securities business include **security analysts** and **portfolio managers**. Analysts and portfolio managers work for mutual funds, pension funds, and hedge funds. However, relatively few persons are actively employed in these positions. Table 1.6 shows that the total number of securities brokers in the United States is over 517,000. At the same time, the total number of employees at mutual fund management companies is as few as 32,000. Moreover, most of the employees at mutual fund companies answer the phone. The number of mutual fund employees engaged in security analysis or portfolio management is a comparative handful.

To get the top analyst and portfolio manager jobs, one usually must obtain the **Chartered Financial Analyst (CFA)** designation. To do so, one must pass three rigorous exams that are given twice per year. Therefore, it takes three years to obtain the CFA designation. For more information, see the sponsoring organization's Web site: [www.cfainstitute.org](http://www.cfainstitute.org).

## Financial Planning

A relatively new field for students with backgrounds in investment is the financial planning business. This is a service business in which the planner gets to know the individual client and tries to match client risk and return preferences with a broad array of appropriate investment opportunities. The **Certified Financial Planner™ (CFP®)** designation is earned by thousands of individuals who complete requirements set by the Certified Financial Planner Standards Board. These requirements involve ethics, education, an exam, and experience. To qualify as a CFP, the applicant must demonstrate proficiency in five areas through extensive training and testing: financial plan processing and insurance, investment planning, income tax planning, retirement planning and employee benefits, and estate planning.

For information about the CFP program, visit the sponsoring organization's Web site at [www.cfp.net](http://www.cfp.net), or write directly to the CFP Board. Information can also be obtained from colleges and universities that sponsor CFP classes and programs.





## Wall Street Ethics

Pick up *The Wall Street Journal* or a leading financial magazine, such as *Forbes*, and it's not hard to find evidence of unscrupulous behavior. Indeed, it can be discouraging to note the amount of press coverage devoted to companies or investment firms cited for fraud. Intense media coverage sometimes gives the mistaken impression that immoral or unscrupulous behavior is common in the investment industry. Nothing could be further from the truth. In fact, high ethical standards are the rule on Wall Street and throughout the investment profession. The overwhelming majority of finance professionals have well-deserved reputations for highly ethical behavior.

The dominant professional association on Wall Street is the CFA Institute, an organization that confers the prestigious Chartered Financial Analyst certificate. The CFA is the finance profession equivalent of the CPA in accounting, and it signifies that the holder has mastered the essential elements necessary to become an effective security analyst or portfolio manager. The CFA Institute is also a strong proponent of defining and

maintaining high professional and ethical standards. Because investment professionals must routinely make decisions that affect the wealth of clients, they have a duty to act with integrity and competence. CFA makes explicit this duty in its *Code of Ethics and Standards of Professional Conduct*.

Among other things, CFA members must:

- Act for the equal benefit of all their clients.
- Place client interest before their own.
- Demand that client transactions have priority over personal transactions.
- Disclose conflicts of interests.
- Not misrepresent investment performance.
- Consider the suitability of investment recommendations to each client.

The unethical behavior of just one investment professional can taint the entire industry. That is why the CFA Institute works hard to ensure its members know and obey strict ethical standards.

See: The CFA Institute, [www.cfainstitute.org](http://www.cfainstitute.org).

## Investment Banking

While the stockbroker and the financial planner deal mainly with individual investors, **investment bankers** deal mainly with institutional clients. Investment bankers are primarily involved in raising capital for corporations by distributing the securities they issue to the general public.

Companies in need of capital hire the investment banker, who arranges to sell their debt or equity securities to the general public and acts as an intermediary between individual investors and the issuing corporations. Investment bankers also advise corporate clients on financial strategies, and they often help arrange mergers and acquisitions. Investment bankers tend to be talented, hardworking, and extremely aggressive. Investment banking is a “pressure cooker” occupation with enormous risk and staggering potential rewards. Individual investment bankers have been known to make tens of millions of dollars per year in total compensation. On the other hand, the penalty to failure can be extreme. Widespread layoffs during industry downturns are common.

This review of career opportunities in investments and the financial services industry is not meant to be exhaustive. Opportunities abound because financial services is a growth industry. Still, students are well advised to remember that compensation in the field of investments is performance based. Rewards for success are substantial. Penalties for underperformance are severe.

## Investment Knowledge in Nonfinance Jobs

Knowledge about investment theory and behavior is also important for people who work in jobs that might be considered outside the investment industry. For example, many business people seek investment advice from their accountants. This tends to be true whether the accountant is working with managers of a large corporation or with owners of a family-run business. In the spring, people sometimes seek investment-related advice from their tax preparer. Being qualified to give such advice allows these professionals to offer their clients

### Investment banker

Finance professional who helps companies and government organizations acquire capital through the issuance of financial assets.

better service. Small business owners and human resource managers must make decisions about retirement options for other employees. Even journalists, politicians, and public policy makers often find themselves working on investment topics. Possibly the most important reason for learning about investing is personal—building personal wealth involves earning money and then investing it wisely!

## Summary

■ A major class of financial assets is **cash reserves**, or short-term money market instruments. The primary attraction of cash reserves is that they offer modest income with stability of principal. A common use of cash reserves is to buy **Treasury bills**, which are debt obligations of the U.S. Treasury that have maturities of one year or less. **Treasury notes** are debt obligations of the U.S. Treasury that have maturities of more than 2 years but less than 10 years. **Treasury bonds** are Treasury obligations with maturities of 10 to 30 years. **Bonds** are an important class of investment assets and include interest-bearing debt obligations issued by corporations, the federal government and its agencies, and state and local governments. A third important type of investment asset is **common stock**. Ownership of common stock gives the owner a proportionate interest in the profits and dividends or other distributions of a corporation.

■ Under a **defined-benefit retirement plan**, the employer promises employees a fixed retirement income that depends on a formula that includes the number of years served times the last year's salary. Under a **defined-contribution retirement plan**, each employee's retirement income is determined by the amount of the employee's contributions and her success in investing the funds. When employees have defined-contribution retirement plans, they must accept responsibility for the management of their retirement assets.

■ A **portfolio** is a diversified collection of stocks and bonds or other assets. Portfolio theory tells us that diversification has the potential to reduce anticipated risk for a given expected return. **Risk** and **expected return** are related. The price of higher expected return is greater anticipated risk. Alternatively stated, the expected reward for taking more risk is a higher return.

■ The **efficient-market hypothesis** states that every security at every point in time is fairly priced. Prices are neither too low (undervalued) nor too high (overvalued).

■ In terms of accounting information, the **return-on-equity** measure is the best available indicator of the firm's ability to profitably use operating and financial leverage. The return on equity is simply the ratio of net

income divided by stockholders' equity, or book value per share.

■ High-profit firms tend to earn lower rates of return over time as more and more capital is committed to the enterprise. At the same time, low-profit firms see their profit rate rise over time as investors redeploy funds to other, more profitable uses. This recurring pattern, or tendency, of profit rates to return toward long-term industry and economywide averages is called **regression to the mean**.

■ On a per-share basis, the **price-earnings (P/E) ratio** is the company's stock price divided by earnings per share. A P/E of 20 means that the stock price is 20 times higher than each dollar of earnings per share. However, a P/E of 20 implies that the firm has five cents in earnings for each dollar of market value.

■ Investment decision making is influenced by the behavior of stock market participants. It is important to understand that both the **incentives** of others and **investor psychology** affect your decisions.

■ A wealth of stock market information is available on the Internet. Investors often seek **stock quotes**, or share prices, in **real time** several times during the trading day. **EDGAR** is an acronym for Electronic Retrieval Analysis System for SEC filings. Go to the EDGAR Web site and key in the **ticker symbol** for any company, and EDGAR will provide a plain-text report of the firm's most recent quarterly accounting earnings information, or the **10Q report**. Other important bits of information available on EDGAR include the firm's **10K report**, or annual financial report, and the company's **proxy statement**, or annual meeting announcement. Schedule **13D** filings are made to the SEC within 10 days of an entity's attaining a 5 percent or more position in any class of a company's securities. Holders of restricted securities, sometimes called *letter stock*, who intend to sell shares must submit SEC **Form 144** filings.

■ One of the most interesting areas in the financial services sector is the stock brokerage business. A **stockbroker**,



sometimes referred to as an *account executive*, usually works with individual investors and institutions in advising and executing orders for individual common stocks or bonds. Highly sought-after jobs in the securities business include **security analysts** and **portfolio managers**. Unfortunately, the number of persons actively employed in these positions is small, and a **Chartered Financial Analyst (CFA)** designation is recommended.

■ The **Certified Financial Planner (CFP)** designation is earned by demonstrating proficiency in five areas through extensive training and testing: financial plan processing and insurance, investment planning, income tax planning, retirement planning and employee benefits, and estate planning. **Investment bankers** deal mainly with institutional clients. Investment bankers are primarily involved with the distribution of securities from issuing corporations to the general public.

## Self-Test Problems with Solutions

**ST1.1** Individual investors typically pay management fees or brokerage “wrap” account fees, transactions costs tied to portfolio turnover, and marketing expenses for their mutual fund manager or broker. As a result, individual investors often pay an extra 3 percent per year in portfolio management costs when compared with low-cost mutual funds designed to mimic the performance of the overall market. Holding portfolio return before expenses constant, use the Rule of 72 to calculate the wealth implications of paying 3 percent per year in excessive costs for an investor with a 24-year retirement account time horizon.

### Solution

The Rule of 72 states that the number of years required to double an initial investment can be calculated using the formula: Years to Doubling =  $72/i$ , where  $i$  is the interest rate. At 3 percent interest, money doubles in 24 years. This means that an investor paying 3 percent per year in excessive costs over a 24-year retirement account time horizon will see a 50 percent reduction in the value of his retirement portfolio when compared with the value that would have been achieved with a low-cost mutual fund designed to mimic the performance of the overall market.

**ST1.2** Show how the future value of a 12-year, \$100,000 investment growing at 6 percent differs when using annual versus continuous compounding. Explain.

### Solution

The future value of a 12-year, \$100,000 investment earning 6 percent interest with annual compounding can be easily calculated using the formula:  $FV = \$100,000 \times (1.06)^{12} = \$201,220$ . (Notice how this value approximates the doubling predicted by the Rule of 72.) With continuous compounding, this value is  $FV = \$100,000 \times e^{(0.06)(12)} = \$205,443$ . Continuous compounding yields a higher result given more “interest on interest.”

## Questions

- 1.1 Almost all companies have an investor relations section on their corporate Web site. Harley-Davidson, Inc. (HOG) is a leading motorcycle manufacturer. Go to the Harley-Davidson investor relations Web site at [www.harley-davidson.com](http://www.harley-davidson.com) and find information about its board of directors. What committees does the board have?
- 1.2 Go to the Standard & Poor’s Market Insight ([www.mhhe.com/edumarketinsight](http://www.mhhe.com/edumarketinsight)) and enter the ticker (BAC) for Bank of America. Under the “S&P Stock Reports” link, click on the “Stock Report” link. How does S&P rate Bank of America? What does the number of stars indicate? What is the 12-month target price?
- 1.3 Detailed quotes for companies listed on major exchanges can be found at <http://finance.yahoo.com>. Use this site to find the most recent full-day trading volume for IBM.



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1.4 Quarterly accounting information for all publicly traded companies is filed with the Securities and Exchange Commission in 10Q reports, which can be found at [www.edgaronline.com](http://www.edgaronline.com). Look up the most recent quarterly balance sheet information for Exxon Mobil Corp. (XOM). What was the value of XOM's total assets during the most recent quarter?



1.5 Nasdaq.com is a good place to find information about changes in insider and institutional ownership of listed companies. Use [www.nasdaq.com](http://www.nasdaq.com) to find the name of institutional investors with the largest ownership interest in the Coca-Cola Company.



1.6 Yahoo! Finance is a good place to find a wealth of stock market and operating information about publicly traded companies. Go to [finance.yahoo.com](http://finance.yahoo.com), get a stock quote, and look under "profiles" to find out who are the members of top management for Wal-Mart Stores, Inc. (WMT).

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& POOR'S

1.7 Go to Standard & Poor's Market Insight at [www.mhhe.com/edumarketinsight](http://www.mhhe.com/edumarketinsight) and enter the ticker symbol (K) for the Kellogg Company. Examine the "Stock Report" to find the most recent quarterly and annual earnings per share of Kellogg. What is the earnings trend?



1.8 *Fortune* magazine's Fortune 500 list ranks the largest U.S. corporations by revenues. Name the top five companies on the Fortune 500 list.



1.9 Go the Web sites of the organizations that support the CFA and CFP designations ([www.cfainstitute.org](http://www.cfainstitute.org) and [www.cfp.net](http://www.cfp.net), respectively), and list the requirements of the CFA and CFP designations.

1.10 In 2007, former UnitedHealth CEO William McGuire agreed to forfeit about \$620 million in stock option gains and retirement pay to settle civil and federal government claims related to stock option backdating. Google this story and explain how it supports *and* contradicts the idea that UnitedHealth had an effective system of corporate governance at the time of the scandal.

## Problems

- 1.1 Assuming annual compounding, use a financial calculator to compute the future value of a \$10,000 investment earning 8 percent interest over a period of 27 years.
- 1.2 Assuming annual compounding, calculate the present value of \$10,000 to be received in 16 years when a 9 percent rate of return can be earned on the investment.
- 1.3 Assuming annual compounding, use the Rule of 72 to calculate the future value of a \$10,000 investment earning 8 percent interest over a period of 27 years.
- 1.4 Assuming annual compounding, use the Rule of 72 to calculate the present value of \$10,000 to be received in 16 years when a 9 percent rate of return can be earned on investment.
- 1.5 Assuming annual compounding, use the Rule of 72 to calculate the present value of \$10,000 to be received in 18 years when an 8 percent rate of return can be earned on the investment.
- 1.6 According to the Rule of 72, what rate of return is needed to double your investment in 12 years? Next use both the annual and continuous methods for compounding growth to find the rate of return needed to double \$5,000 in 12 years.
- 1.7 Using the Rule of 72, determine an approximate 6 percent rate of return needed to double an investment in 12 years. Calculate the continuous compounding rate of return needed to double an investment in 12 years. Compare your answers.

- 1.8** Use a financial calculator to show how the future value of a 10-year, \$100,000 investment growing at 12 percent differs when using annual versus continuous compounding. Explain.
- 1.9** Compare the future value of \$5,000 invested for 45 years in common stocks and \$50,000 invested for 45 years in bonds. Assume a 12 percent annual return for common stocks and a 6 percent annual return for bonds.
- 1.10** Suppose you want to buy a house. If you invest \$17,500 in a bond that pays 5 percent per year, how much will you have for a down payment in eight years?
- 1.11** Assume that you expect to inherit \$100,000 in 12 years. What is the present value of that future \$100,000 given a 6 percent annual interest rate?
- 1.12** Suppose that a cellular telephone service company offers \$6,000 per year to place a signal transmission tower on your property. If you can earn a 5 percent annual return on risk-free investments, what is the discounted present value of the offer?
- 1.13** Assume that at age 20, you begin to invest \$2,000 per year in common stocks earning 12 percent. If you stop contributing at age 40 but leave your investment to accumulate for an additional 25 years, how much will you have when you retire at 65? (*Note:* You can use Table 1.3 as a reference for this problem.)
- 1.14** Suppose that you have won the lottery and you and your heirs are entitled to perpetual payment of \$100,000 per year. If an appropriate risk-adjusted discount rate is 5 percent, calculate the present value of this annuity.
- 1.15** Assume that you expect to inherit \$100,000 in 12 years. What is the present value of that future \$100,000 given a 6 percent annual interest rate (compounded annually)?
- 1.16** On August 19, 2004, Google, Inc. (GOOG) began trading at 100 per share. By May 19, 2008, or 3.75 years later, GOOG's share price had risen to 577.72. Use a financial calculator and annual compounding to compute the annual rate of return earned by GOOG shareholders over this period.
- 1.17** On August 19, 2004, Google, Inc. (GOOG) began trading at 100 per share. Compute the share price GOOG would have to reach by August 19, 2014, to provide long-term investors with a 60 percent annual rate of capital appreciation over its initial 10-year trading history.
- 1.18** Johnson & Johnson (JNJ) engages in the research and development, manufacture, and sale of various products in the health care field. Its consumer segment offers products used in baby care and skin care as well as nutritional products and over-the-counter pharmaceuticals. Prominent brand names include *Band-Aid*, *Listerine*, *Neutrogena*, *Splenda*, *Stayfree*, *Sudafed*, and *Tylenol*. The company is also known for paying stockholders a growing stream of dividend income. In 1993, JNJ paid a common stock dividend of \$0.25 per share. By 2008, dividends per share had risen to \$1.76. Use annual compounding to calculate the annual rate of change in JNJ's dividend over this 15-year period.

## CFA Problems

- 1.1** An investor wants to have \$1 million when she retires in 20 years. If she can earn a 10 percent annual return, compounded annually, on her investments, the lump-sum amount she would need to invest today to reach her goal is *closest to*:
- \$100,000
  - \$117,459
  - \$148,644
  - \$161,506





- 1.2 An individual deposits \$10,000 at the beginning of each of the next 10 years, starting today, into an account paying 9 percent interest compounded annually. The amount of money in the account at the end of 10 years will be *closest to*:
- \$109,000
  - \$143,200
  - \$151,900
  - \$165,600



- 1.3 The AIMR Code of Ethics specifically addresses all of the following *except*:
- Competence
  - Integrity and dignity
  - Independent judgment
  - Importance of contractual obligations

## INVESTMENT APPLICATION

### Who Wants to Be a Millionaire?

According to data available from *The Statistical Abstract of the United States, 2008*, per capita income in the United States is \$25,036. Income before taxes for the median (or “middle”) household is \$46,326. There are presently about 114 million households in the United States. Roughly 28.3 percent earn household income of \$75,000 or more per year. A total of 16.7 million households report income in excess of \$100,000 per year. The cutoff point for the top 5 percent of U.S. families according to income before taxes is \$177,143 per year.

All of these numbers relate to income, not to wealth. What does the distribution of wealth look like? The numbers may surprise you. For all families, the median level of wealth is only \$93,100. This includes financial and nonfinancial assets, such as homes and cars, and adjusts for debt, such as mortgages. The median value of stocks and mutual funds of those families who own these securities is only \$32,500.

How much wealth do you consider is necessary to qualify as rich? Is it more than \$500,000? If so, fewer than 1 in 20 families in the United States command such a level of wealth. Similarly, if an income in excess of \$200,000 per year is required before you would consider yourself rich, then only 1 in 60 families would enjoy a similar level of income in the United States. If the amount of wealth required exceeds \$1 million or the amount of income necessary exceeds \$250,000, then you are well into the very narrow end of the wealth and income distribution in the overall population. For arguments sake, let’s assume that \$1 million is the amount of money required to be rich, although some might have a higher number in mind.

How do you build \$1 million of wealth? As shown in Table 1.7, a retirement account investment of only \$417 per year in a broadly diversified portfolio of common stocks has the potential to grow to \$1 million over a 50-year period. This is only \$34.75 per month! If the investment is not made in a tax-deferred retirement account, then you would have to increase the annual investment contributions to \$1,227, or almost three times more. But most people are hoping that they will not have to work for and save for 50 years. If you have 40 years until your desired retirement date, it takes an annual retirement account stock investment of \$1,304. Note that a fixed-income investment approach requires an annual retirement account investment of \$6,462 in bonds or \$8,278 in money market investments.

The reality is that \$1 million isn’t what it used to be. Due to inflation, it won’t be nearly as valuable in 40 years. Over extended periods of time, taxes and inflation inhibit the building of real wealth.

- a. Most investors do not contribute the same amount every year. Indeed, young investors usually earn less money and therefore have less to contribute. As a person ages, income rises because of job promotions and because of wage inflation. Using Table 1.7, determine how much money the following investor will have at retirement age. At age 25, the investor has 40 years until retirement. He opens a taxable stock brokerage account and contributes \$1,480 per year for 40 years (note that this contribution is exactly half of the \$2,960 shown in the table). At age 35, the investor gets a job with a defined-contribution plan and invests \$4,144 per year in stocks for 30 years. At age 50, the investor has only 15 years left until retirement. Taking a fixed-income approach, the investor starts investing an additional \$24,057 every year into a taxable bond account. How much money will this investor have at retirement?
- b. Why do so few individuals accumulate a significant amount of retirement wealth? Will you? Use the data in Table 1.7 to show how.

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Annual Investment Needed to Become a Millionaire

TABLE

1.7

Number of Investing Years	Stock Market Investments		Long-Term Bond Market Investments		Short-Term Money Market Investments	
	12% Before Taxes	9% After Taxes	6% Before Taxes	4.5% After Taxes	5% Before Taxes	3.75% After Taxes
1	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
2	471,698	478,469	485,437	488,998	487,805	490,798
3	296,349	305,055	314,110	318,773	317,209	321,140
4	209,234	218,669	228,591	233,744	232,012	236,369
5	157,410	167,092	177,396	182,792	180,975	185,552
6	123,226	132,920	143,363	148,878	147,017	151,712
7	99,118	108,691	119,135	124,701	122,820	127,574
8	81,303	90,674	101,036	106,610	104,722	109,498
9	67,679	76,799	87,022	92,574	90,690	95,465
10	56,984	65,820	75,868	81,379	79,505	84,261
11	48,415	56,947	66,793	72,248	70,389	75,115
12	41,437	49,651	59,277	64,666	62,825	67,512
13	35,677	43,567	52,960	58,275	56,456	61,096
14	30,871	38,433	47,585	52,820	51,024	55,613
15	26,824	34,059	42,963	48,114	46,342	50,876
20	13,879	19,546	27,185	31,876	30,243	34,462
25	7,500	11,806	18,227	22,439	20,952	24,832
30	4,144	7,336	12,649	16,392	15,051	18,588
35	2,317	4,636	8,974	12,270	11,072	14,273
40	1,304	2,960	6,462	9,343	8,278	11,159
45	736	1,902	4,700	7,202	6,262	8,841
50	417	1,227	3,444	5,602	4,777	7,074