Chapter One

The Rewards of Investing
The Magic of Compounding

"The greatest mathematical discovery of all time." That is how Albert Einstein is said to have described compound interest. This first chapter emphasizes the magic of compounding—the interaction of rate of return and time—in the search for optimum long-term rates of return on your financial assets. I believe virtually every financial goal you may have—building capital, obtaining income to meet your day-to-day financial needs, saving for your child's college education, putting away money for your retirement, or any other wealth-building purpose—can be met through a disciplined approach to the ownership of financial instruments.

This is, first and foremost, a book about mutual funds and the mutual fund industry. To set the stage, I will discuss the fundamentals of the different classes of financial assets and their unique investment characteristics. While this is not a textbook on the financial markets, I believe the intelligent, and ultimately successful, investor must consider and understand the three major categories of liquid financial securities: stocks, bonds, and cash reserves.

I hope this first part helps eliminate some of the mystery of the financial markets. This is no mean task. I have realized over the years that many individual investors regard the financial markets as enigmatic, occult, and driven by forces unseen. Mysterious though the markets may seem in the short run, in the long run it is the basic fundamentals of investing that determine the returns on financial assets. For stocks, returns are driven by earnings and dividends; for bonds and money market instruments, by interest coupons over specified periods. It is the reality of underlying financial forces, not the illusion of superficial emotions—optimism and pessimism, hope and fear, greed and satisfaction—that is at the heart of intelligent investing.

CAVEAT EMPTOR: ***The Real World***

The rates of return actually experienced by investors in the aggregate will fall short of the returns of the three unmanaged measurement standards: the S&P 500, the 20-year government bond, and the 90-day U.S. Treasury bill (or T-bill). If you own an actively managed equity portfolio, you may easily incur annual investment expenses ranging from 0.50% or less to 3.00% or more, including advisory fees and portfolio transaction costs. (Even if you invest in an index portfolio, you may incur annual charges of 0.20%.) Expenses of this magnitude are not incurred in the ownership of a U.S. Treasury bond or a U.S. T-bill, but in a high-grade bond portfolio or a money market portfolio you may incur investment expenses of 0.30% to 1.50%. For a large institutional investor, these costs would be lower; for a small individual investor, the costs would be much higher. Whatever the case, the returns actually realized by investors as a group would have fallen short of those in our historical, but theoretical, study.

A LONG-TERM PERSPECTIVE

The magic of compound interest is simply a combination of time and rate of return. Let us begin by taking a truly long-term look at the financial markets. Complete data tracing the returns on financial assets are available beginning in 1872. I use primarily the Standard & Poor's 500 Composite Stock Price Index (and a predecessor index prior to 1926) as the measure of common stock returns, the long-term (20-year) U.S. government bond as the measure of bond returns, and the 90-day U.S. Treasury bill as the measure of the returns on cash reserves.

During the 1872–1992 period, the annual return on U.S. common stocks averaged +8.8%, the annual return on long-term bonds averaged +4.6%, and the annual return on cash reserves averaged +4.2%. The differences in returns—which may appear small—result in a staggering dispersion in the final value of $1 invested in each asset class on December 31, 1871. The summary figures are in Table 1–1. A mere 0.4 percentage point increase in return, from +4.2% in bills to +4.6% in bonds, increases the final value of the $1 initial investment by more than

TABLE 1–1
The Financial Markets *(December 31, 1871, to December 31, 1992)*

	Annual rate of return	*Final value of $1 initial investment*
Common stocks	+8.8%	$27,710
Long-term bonds	+4.6	240
Cash reserves	+4.2	140

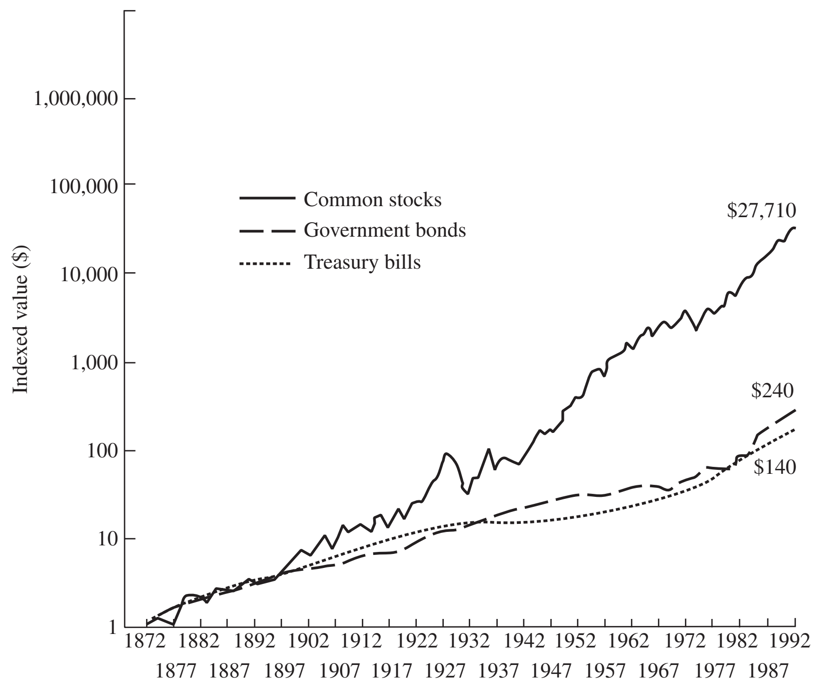
70%. A further 4.2 percentage point increase, to 8.8% in stocks, causes the final value to increase an additional 115 times. This is the magic of compounding writ large. Figure 1–1 presents the cumulative returns since December 31, 1871, for each of the three basic asset classes.

I have used this dramatic example to get your attention and to show you that time and rate of return, inextricably linked, are a powerful combination. However, we all have time horizons that are somewhat shorter

CAVEAT EMPTOR: ***How Now the Dow?***

When they ask, “How’s the market?” many investors are thinking about the Dow Jones Industrial Average of 30 stocks, weighted by their current share prices. The Dow Jones Average, because of its high numeric value (3300 at the end of 1992), is fun. It magnifies market moves to heroic dimensions, with but a 3% market increase or decrease reflecting a 100-point leap (or plunge). The fact is a 3% move in a typical stock selling at $30 per share is only 90 cents. Despite the Dow’s popularity, I chose the Standard & Poor’s 500 Index as my market standard. Since it is weighted by each corporation’s total market capitalization, it is a much more reliable indicator of the actual experience of aggregate investors as a group at any given point in time. That said, over long time periods the records of the two indicators have been quite similar. From December 31, 1970, to December 31,1992, for example, the annual rates of returns were Dow Jones Average, +12.6%; Standard & Poor’s 500 Index, +12.2%.

FIGURE 1–1
Cumulative Returns on U.S. Financial Assets *(December 31, 1871, to December 31, 1992)*



than 120 years. But even if the sizes of the ultimate capital wealth created are quite different, the principles remain intact whatever the holding period. For example, the value of $1 invested in each of the three asset classes after 25 years would be $2.80 for bills, $3.10 for bonds, and $8.30 for stocks. Hence, the final value of the stock investment would be two and one-half times that of bonds, and nearly three times that of reserves. A detailed tabulation showing the crucial relationship between rate of return and length of holding period is presented later in this chapter (see Table 1–7).

While compound rates of return determine the ultimate success of any investment program, they are a simplistic way of measuring performance. For it is not enough to know what aggregate rates of return have been; we must also know how consistent these returns have been over time and what contributing forces have driven them. Reliable data needed to

JWBT1529-c01 JWBT1529-Bogle March 12, 2015 15:55 Printer Name: Yet to Come Trim: 6in × 9in

CAVEAT EMPTOR: ***A Lantern on the Stern***

Financial history is important, and studying historical rates of return provides useful perspectives. But beware of concluding too much from past returns in the financial markets. Especially beware of past returns for periods that seem long enough but are not (such as post-World War II, an almost continuous bull market period). Even the period beginning in 1926 has its limitations, especially considering the low level of interest rates that prevailed from 1933 to 1958, suppressed first by the Depression and then by national fiscal and monetary policies. Financial returns do not lend themselves to actuarial tables. Samuel Taylor Coleridge tells us "the light which experience gives is a lantern on the stern." Treat history with the respect it deserves—neither too much nor too little.

examine the elements of return are available from 1926 to the present, constituting essentially the modern financial history of the United States.

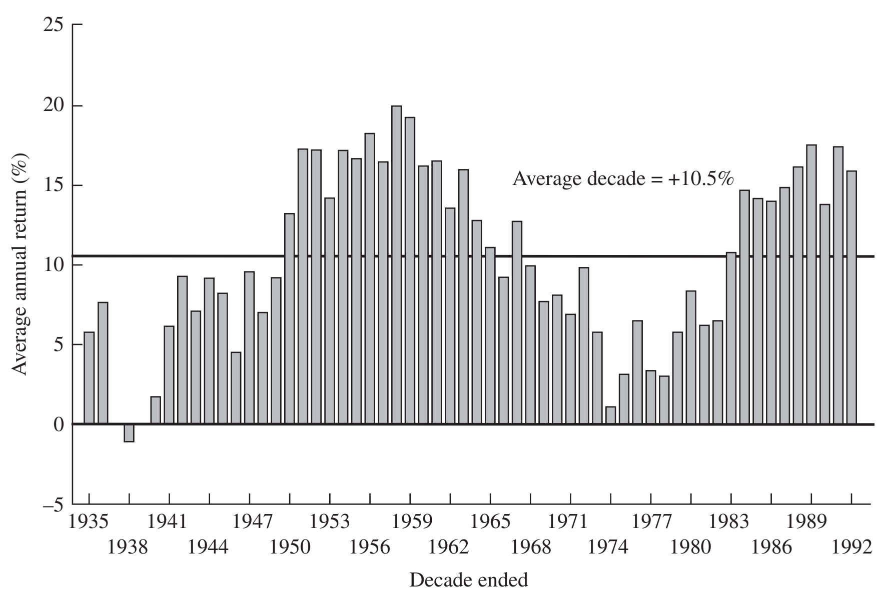
TOTAL RETURNS ON COMMON STOCKS

In discussing the total returns on common stocks, I refer not to individual equities but to widely diversified equity portfolios. For this purpose I will use the Standard & Poor's 500 Composite Stock Price Index, probably the most accurately constructed of all of the myriad indexes of market returns. The returns generated by this diversified index correlate closely with the returns of diversified equity mutual funds.

Before I begin discussing the history of returns on common stocks, I want to emphasize that stock returns are driven by two critical factors: dividends and earnings. Without dividends, which are made possible by earnings, an investment in any stock would be purely speculative in nature. Why are dividends and earnings so vital to stock returns? The most basic way to answer that question is to recall that a share of company stock represents a share in a business firm. If you are considering purchasing shares in a firm, you have two broad expectations for that firm: (1) it will pay annual dividends and the amount of these dividends will grow over time; or (2) rather than paying dividends, it will retain its earnings so as to build the business.

JWBT1529-c01 JWBT1529-Bogle March 12, 2015 15:55 Printer Name: Yet to Come Trim: 6in × 9in

FIGURE 1–2
Common Stock Returns *(Decades Ended 1935–92)*



While the second expectation suggests that dividends need not always be a critical determinant of the returns on stocks, even when a company does not pay a dividend, investors implicitly value the firm's stock based on the presumption of future dividends. When the earnings of a business are retained each year, investors expect that the earnings will increase over time, resulting in future dividends that will be higher than if they had been distributed currently. In sum, while the consideration of stock returns may encompass any number of qualitative and quantitative factors, any valuation judgment must ultimately rely on dividends and earnings.

Since 1926, the average *annual* total return (taking into account both capital appreciation and dividends) on common stocks has been +10.3%. While it is important to know what to expect from the stock market in the long run, you should also consider how stock returns have varied over different periods. Since this book is addressed to the long-term investor, I use a decade as my standard for analysis. Figure 1–2 shows the annualized total return on common stocks for the average decade during the 67-year period ended December 31, 1992, and for each of the 58 "moving decades" within it (1925–35, 1926–36, continuing through 1982–92).

As you can see, the variations in total return from one decade to the next were substantial. During the worst decade (1928–38), one of only two with a negative return, stocks provided an average annual return of −0.9%. During the best decade (1948–58), the average annual return was +20.1%. Nine decades witnessed returns of less than +5% and 16 of more than +15%. The majority, 33 decades, were in a middle range of +5% to +15%. If you had put your money to work at the beginning of any particular decade, there would have been roughly a 50–50 chance that your return would have been better than the +10.5% decade norm and a 50–50 chance that it would have been worse.

Figure 1–2 suggests that the decade returns offer little in the way of definitive judgments about stock returns except that they vary widely and randomly. But determining the composition of those returns adds substantial value to the analysis. In substance, three principal elements comprise the return on stocks:

1. Initial dividend yield.
2. Growth in dividends.
3. Change in price-dividend multiple.

The first two factors are financially driven and fundamental: (1) the actual dividend yield at the start of each decade and (2) the dividend growth generated by stocks over each of the past rolling decades. Ultimately, these two factors are the essential, dominant determinants of stock returns. The third factor is market-driven and technical. It is based on the opinion of investors at any point in time as to what is a fair price to pay for each $1 of corporate dividends—not just current dividends, but expected future dividends as well. I have used the price-dividend multiple rather than the more conventional price-earnings multiple, due mainly to the inexactness of earnings calculations compared to the precision of dividends actually paid. The price-dividend ratio is the reciprocal of the dividend yield (a price of $25 for $1 of dividends equates to a yield of 4%).

There are wide variations from year to year in the price-dividend multiple, just as in the price-earnings multiple. Many of these variations are based on the emotions of investors. In times of optimism, as was the case prior to the great crashes of October 28, 1929, and October 19, 1987, the price of $1 of dividends had been as high as $40. In times of gloom, so often the case during the post-Depression era through the mid-1950s, it had been as low as $10. The long-run average going back to 1926 is $24.

CAVEAT EMPTOR: *The Price-Dividend Multiple*

My shift from the customary concept of price-earnings multiple to the less familiar price-dividend multiple is based largely on the fact that, especially in recent years, wide gaps have opened up between *reported* corporate earnings and *operating* corporate earnings. The difference between the two is accounted for by write-offs of discontinued operations, write-downs of assets such as real estate, and changes in generally accepted accounting principles. As a result, reported price-earnings multiples have soared and, I would argue, have lost touch with reality. This chart reflects the sharp divergence of price-earnings and price-dividend multiples over the past 15 years. If reported earnings are less than operating earnings in any given year, there are two consequences: (1) the current price-earnings ratio rises and (2) the rate of past earnings growth declines. In 1991, for example, reported earnings on the S&P 500 totaled $15.97 per share, compared with operating earnings of $21.61 per share. Thus, the price-earnings ratio was 26.1 times, the highest in the entire period illustrated. If operating earnings were used, a more realistic ratio of 19.3 times would result. Using the reported earnings number results in an annual earnings growth rate of only +0.4% during the decade ended December 31,1991, while operating earnings grew at a rate of +3.5% annually and dividends grew at +6.3% annually. If 1991 were unique, the problem might be ignored, but there were substantial write-offs again in 1992. In the long run, earnings must be generated for dividends to be paid, but the durability of dividends makes them a more solid baseline for analysis.

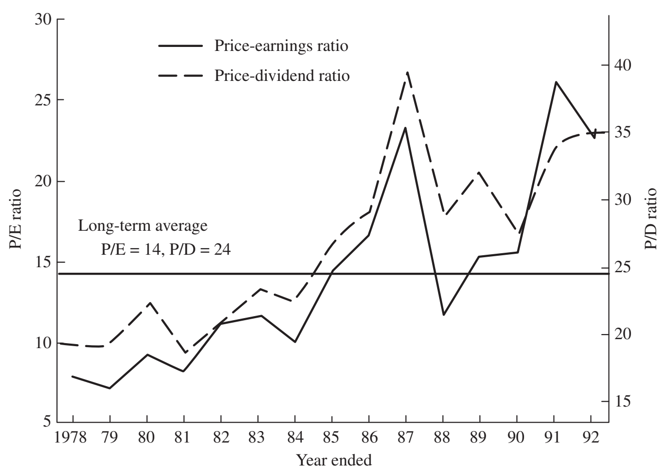
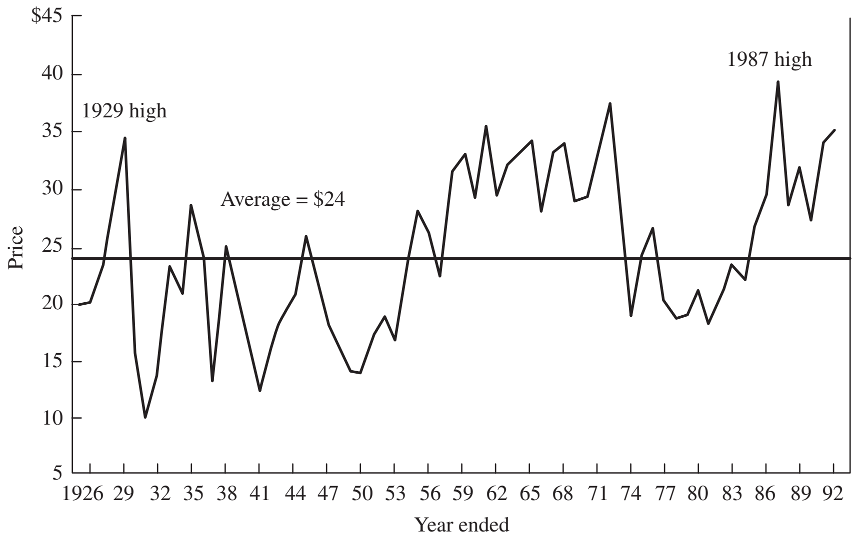


FIGURE 1–3
Price of $1 of Dividends *(1926–92)*



It is very important to understand that changes in the price-dividend multiple have a huge impact on stock returns. A decline in the price of $1 of dividends from $30 to $20 would result in a decline of −33% in stock prices. If this decline took place over a decade, the reduction in return would be −4.0% a year.

To some degree, the level of the price-dividend ratio is affected by the general level of interest rates, because stocks must compete with fixed-income securities for investor favor. Thus, when bond yields are relatively low, the price of $1 of dividends tends to be high (that is, the dividend yield tends to be low). When bond yields are high, the price of $1 of dividends tends to be low. Figure 1–3 traces the level of the price-dividend ratio during the 1926–92 period.

By way of contrast, the fundamental factors for the long-term investor are dividends and dividend growth. Taken together, these two basic elements account for about 90% of the average ten-year return on stocks during the 1926–92 era. Specifically, the average decade return of +10.5% annually included an average initial yield of 4.7% and an average ten-year dividend growth rate of +4.8%. A rise in the price-dividend multiple,

TABLE 1–2
Components of Stock Returns

	Golden decade 1981–91	*Tin decade 1968–78*	*Average decade 1926–92*
Initial dividend yield	+5.4%	+3.0%	+4.7%
Dividend growth rate	+6.3	+5.1	+4.8
Impact of multiple change	+6.3	−5.6	+1.0
Average annual total return	+18.0%	+2.5%	+10.5%

from 20 times at the start of the period to 35 times at its conclusion (i.e., a yield decline from 5.1% to 3.8%), accounted for the remaining +1.0%.

What is true in the very long run, however, is anything but true in the shorter run, even over a decade. Table 1–2 contrasts the components of total return in the recent golden decade with an earlier tin decade and the historical decade norms. These examples make an elementary point: large swings in the price-dividend ratio often make the difference between a golden decade and a tin decade. During the former decade, the price that investors were willing to pay for $1 of dividends jumped from $19 to $34, engendering a +85% increase in valuation, for a positive contribution to return of +6.3% annually. During the latter decade, the price of $1 of dividends fell from $34 to $19, a −44% decrease in valuation, for a negative contribution to return of −5.6% annually.

One of the ironies of this comparison is that the dividend growth rate—the second component of total return—was almost as large in the tin decade (+5.1% per year) as in the golden decade (+6.3% per year). While both of these ten-year growth rates are higher than the long-term decade average of +4.8%, even if you had known the dividend growth rates in advance, it would not have been much help to you in deciding whether or not to invest in stocks.

The first component of stock returns—the dividend yield at the start of each decade—should be of special importance to the investor, because it alone is known in advance. Long-term investors would be wise to give the current dividend yield significant weight in their appraisal of the total returns they expect from stocks since, in the long run, it has comprised nearly one-half of the average total return on stocks (average initial yield of 4.7%; average decade return of +10.5%).

In considering stock returns, then, what is most important to the truly long-term investor is corporate dividends—their yield when they are purchased and their subsequent growth. But short-term investors—those with a time horizon as short as one year or even as long as a decade—must concern themselves with not only the current yield and the future growth of dividends but also the valuation the marketplace may set for these dividends at some point in the future. The price paid for $1 of dividends varies widely over interim periods, but over the very long run has tended to return to its average level of about $24.

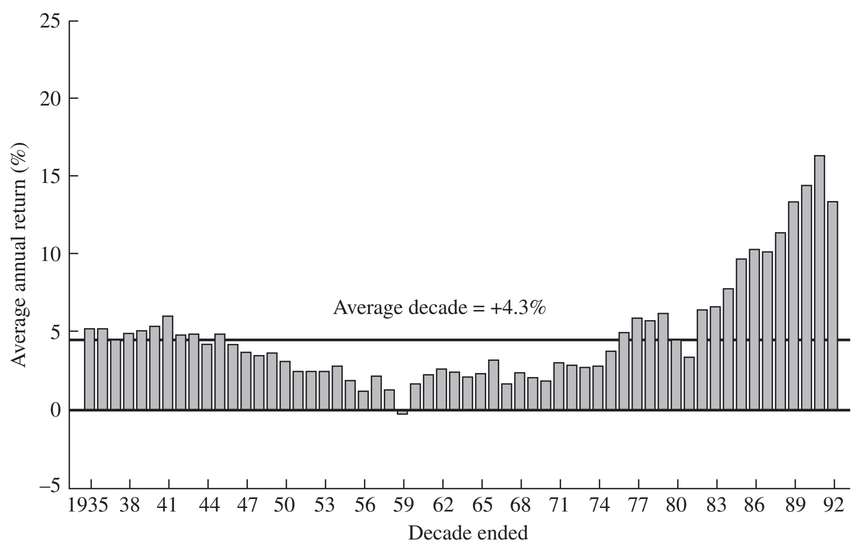
Over the modern history of the financial markets (going back to 1926), the average annual return of +10.3% for stocks was by far the highest of any of the three major financial asset classes. While past results offer no assurances for equity returns in an inevitably uncertain future, the superior relative results of investing in equities—in nearly every decade spanning a full century—suggest that stocks should represent a major element of your investment program.

TOTAL RETURNS ON BONDS

In this section, I use a 20-year U.S. government bond as my benchmark. This approach is to a degree simplistic since this bond has a higher credit quality than other bonds. But the long-term data appear sound and the returns are fairly representative of the bond market as a whole. Since 1926, the *annual* return on U.S. government bonds has averaged +4.8%. As was the case with stocks, however, this figure conceals at least as much as it reveals, for the average return on bonds has varied sharply from one decade to the next. Figure 1–4 shows the returns on U.S. government bonds for each of the 58 decades during the 1926–92 period.

You can see that the variations in the decade-long average returns were substantial. During the worst decade (1949–59), the only one with a negative return, bonds provided an annual return of −0.1%. In the best decade (1981–91), the return was +15.6%. From the decade ending in 1950 through to the decade ending in 1974, the average return on bonds never reached +3% annually. Beginning with the decade ending in 1985, the average annual return was +9% or higher. This sea change in the level of interest rates, driven in part by changes in expectations about the level of inflation, is one of the more remarkable events of modern financial history.

FIGURE 1–4
Long-Term Government Bond Returns *(Decades Ended 1935–92)*



As in the case of stocks, the total return on bonds comprises three principal elements:

1. Initial yield.
2. Reinvestment rate.
3. Impact of rate change.

The first of these three factors is the ultimate fundamental. The initial interest rate consistently has been by far the major determinant of the future returns on bonds. It is reasonable, for example, to assume that a U.S. government bond with an 8% coupon will achieve an annual total return of +8% if held to its 20-year maturity.

This observation, however, is not always correct. Only if the semiannual interest coupon is reinvested at the same interest rate of 8% will the cumulative return equate to +8% annually. If the reinvestment rate is much higher over the term of the investment, the return will be commensurately enhanced; if it is much lower, the return will be commensurately reduced. Table 1–3 shows the importance of this reinvestment factor. It

TABLE 1–3
20-Year Government Bond *(8% coupon, $10,000 Initial Investment)*

	Reinvestment Rate		
	6%	*8%*	*10%*
Value at maturity	$10,000	$10,000	$10,000
Cumulative interest coupon	16,000	16,000	16,000
Reinvestment effect	14,200	22,000	32,300
Total value	$40,200	$48,000	$58,300

considers a $10,000 initial investment in a long-term bond with a maturity of 20 years, assuming a lower reinvestment rate (6%), an unchanged reinvestment rate (8%), and a higher reinvestment rate (10%).

As you can see, an instantaneous increase in rates to 10% raises the final value of the 8% coupon bond from $48,000 to $58,300. More than half of this final value is accounted for solely by the reinvestment effect, a factor so often ignored in the calculation of bond returns. At a 6% reinvestment rate, the accumulation total of $40,200 is only 85% of the accumulation achieved at the 8% reinvestment level.

Even these figures are invalid unless the bond is held until its maturity. The third component of bond returns is the impact of a change in interest rates on a bond's market price when it is valued prior to its maturity. An instantaneous increase in rates from 8% to 10% would reduce the market value of a 20-year bond with an 8% coupon from $10,000 to $8,300 (a 17% decline). An instantaneous drop from 8% to 6% would increase the bond's value from $10,000 to $12,300 (a 23% increase). Barring a default, such a paper loss or gain would be gradually reduced and finally eliminated as the bond approached its maturity date.

Changes of these dimensions in interest rates do not take place overnight. And the rate at which interest coupons are reinvested varies over a large number of intervals (i.e., 40 semiannual reinvestment dates for a 20-year bond). With all of this averaging, the combined impact of reinvestment rates and changes in the general level of interest rates has only rarely been the dominant force in explaining bond returns over any ten-year period.

Table 1–4 presents the components of return on long-term U.S. government bonds in the average decade during the 1926–92 period and

TABLE 1–4
Components of Bond Returns

	Golden decade 1981–91	*Tin decade 1971–81*	*Average decade 1926–92*
Initial yield	+13.3%	+6.0%	+4.5%
Reinvestment rate	−2.6	+2.4	+0.6
Impact of change in rates	+4.9	−5.6	−0.8
Average annual total return	+15.6%	+2.8%	+4.3%

in two dramatically contrasting interim decades. Note that our golden decade of 1981–91 is the same for bonds as for stocks. However, for contrast we have selected as the tin decade the ten years ending in 1981, when interest rates rose to their highest levels in U.S. history.

These three examples reinforce the elementary nature of bond investing: the initial yield is the primary determinant of long-term bond returns. In fact, on average it has explained more than 80% of the total return in each of the 58 individual decades and virtually the entire return of the decade average. During the tin decade, the initial yield was pulled down by the sharp rise in rates from 6.0% to 13.3%, with some of the resultant principal loss offset by rising investment rates. In the golden decade, the reverse was true. A high initial yield gave way to a sharply lower yield at the end of the period, resulting in a dramatic increase in principal. This increase was only partially offset by declining reinvestment rates.

To express it in the same terms as in the previous section on stocks, the price paid for $1 of interest is the critical factor in bond returns. Figure 1–5 shows the price paid for $1 of interest on a long-term U.S. government bond during the 1926–92 period. The wide swings in the price paid for $1 of interest are simply a manifestation of wide swings in interest rates. The $50 price is equivalent to a 2.0% yield; the $8 price is equivalent to a 12.5% yield. The long-run annual average is $26, or a yield of 3.8%, a bit below the 4.5% average yield at the beginning of each decade.

The price-interest ratio shown in Figure 1–5 is for a long-term bond. The ratio is often very different for bonds of shorter maturities. (This factor is known as the term structure of interest rates.) In 1988, for

FIGURE 1–5
***Price of $1 of Interest** (1926–92)*

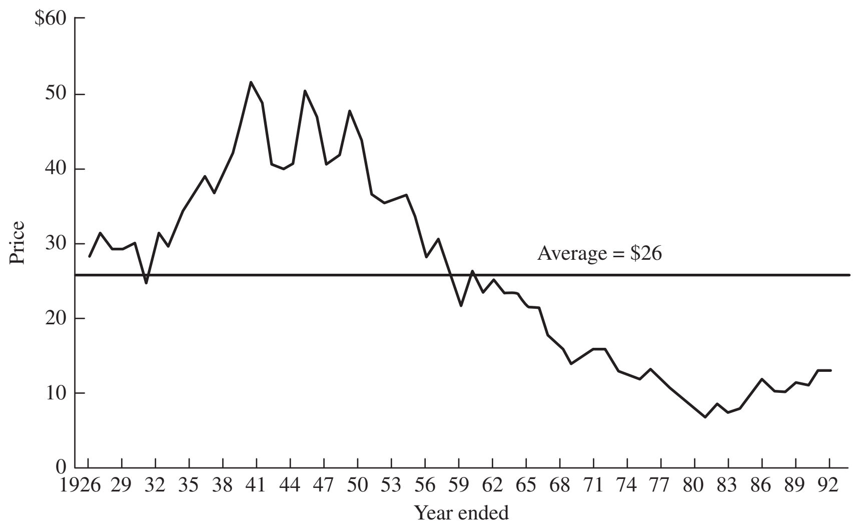


TABLE 1–5
A Shifting Yield Curve

	December 1988		December 1992	
Government bond	*Interest rate*	*Price of $1 of interest*	*Interest rate*	*Price of $1 of interest*
Short-term	9.2%	$11	5.1%	$20
Intermediate-term	9.2	11	6.1	16
Long-term	9.2	11	7.3	14

example, the yield curve was virtually flat; by the end of 1992 it had become the steepest in U.S. history. Table 1–5 illustrates the shift and shows how quickly the yield curve can change. As it does, your decisions about the composition of your bond portfolio may change as well.

Since 1926 the average return of +4.8% annually on long-term U.S. government bonds has fallen far short of the average return on stocks

CAVEAT EMPTOR: ***Historical Evidence, or Hysterical?***

We now know two incontrovertible statistical facts: (1) since 1926, the annual total return on U.S. government bonds has averaged +4.8% per year and (2) the initial yield on bonds is the major influence on their subsequent long-term return. We can conclude that, even though the annual return on long-term bonds has averaged +4.8% over modern financial history, the 7.3% yield on long-term U.S. Treasury bonds at the end of 1992 was likely to be a far better indicator of future returns. Although many investment professionals continue to use past bond returns to guide their asset allocation decisions, at least in this case historical evidence is hysterical evidence in disguise.

(+10.3%). The premium for owning stocks averaged +5.5% per year. However, the premium return averaged +6.1% through 1981 but only +1.8% thereafter, suggesting that the earlier premium may have been abnormally large. So the long-term outlook for bonds relative to stocks may well be more favorable in the 1990s than it was in the past.

TOTAL RETURNS ON CASH RESERVES

Of the three basic financial asset classes, the total return on cash reserves is the simplest to analyze. You need not be concerned about market volatility, income growth, or reinvestment rates. Your only consideration should be the current rate of interest available on cash reserves. In this analysis, I shall use the 90-day U.S. T-bill, which has provided a long-term annual total return of +3.7%.

Essentially, your return on a U.S. Treasury bill is set on the day that it is purchased. If the T-bill is held to its maturity three months later, the return has only one component: interest income. In substance, T-bills, unlike stocks and corporate bonds, incur neither principal risk nor credit risk. In this simplified comparison, they can be thought of as a haven (albeit one that promises lower returns) in which to shelter your assets from principal volatility. Figure 1–6 shows the historical returns earned on U.S. Treasury bills in each decade during the 1926–92 period.

FIGURE 1–6
U.S. Treasury Bill Returns *(Decades Ended 1935–92)*

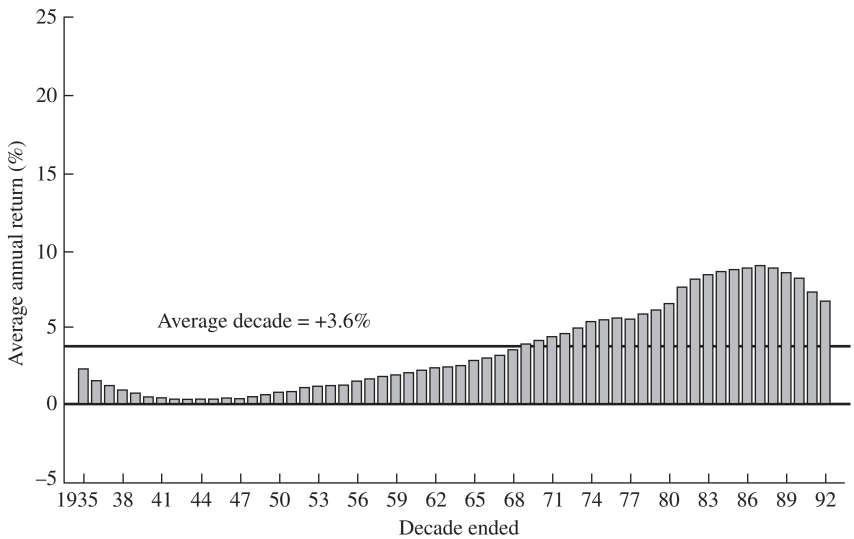


TABLE 1–6
U.S. Treasury Bill Returns

	Golden decade 1977–87	*Tin decade 1932–42*	*Average decade 1926–92*
Average annual total return	+9.2%	+0.1%	+3.6%

Again, the variations in return over the decades are substantial, with yields running in the 1% range during most of the decades ending in the late 1930s through the mid-1950s (when inflation was not a significant factor), only to spring up to the 6% to 9% level in the 1970s and 1980s (when inflation was considerably more prevalent). Table 1–6 shows the returns for a golden decade and a tin decade as well as the long-term decade average.

It is ironic that the Treasury bill rate in 1992—which averaged about 3.5%—so closely reflects the long-term decade average that lies between

CAVEAT EMPTOR: ***Regression to the Mean(s)***

There is a powerful tendency for the total returns on financial assets to regress to the mean. The question is, which mean?

- Common stock returns tend to regress to the average historical long-term rate of return. That is because, in the long run, they are determined largely by dividend yields and dividend growth, which in turn are based on the returns on capital earned by corporations in an ever-competitive economic environment.
- Bond returns—short-term, intermediate-term, and long-term alike—tend to regress, not to the historical norm, but to the interest yield prevailing at the time your investment is made.
- Bill returns tend to take on a life of their own, because their rates are reset so frequently. During the post-World War II period, bill returns show some tendency to regress to a real return (the nominal return less the rate of inflation) in the 1% range.

For all types of assets, the concept of regression to the mean is fundamental to understanding the financial markets. However, it should be used, not casually, but thoughtfully.

two remarkable extremes: the low rates associated with the Great Depression, World War II, and postwar federal monetary policies, and the high rates associated with the unprecedented price inflation of the late 1970s and early 1980s. In the abstract, we can conclude only that short-term rates are variable and that any given level of rates will persist for an indeterminate period.

THE MAGIC OF COMPOUNDING FOR TODAY'S INVESTOR

Both the data for some 120 years of investing and the data for the modern era (since 1926) confirm that, among the three asset classes, stocks have consistently provided the highest returns, long-term bonds the second highest, and cash reserves the lowest. Stocks have achieved their winning

TABLE 1–7
Capital Accumulations *(Annual Rates of Return)*

	Initial Investment of $25,000				
Years invested	*4%*	*6%*	*8%*	*10%*	*12%*
1	$26,000	$26,500	$27,000	$27,500	$28,000
5	30,400	33,500	36,700	40,300	44,100
10	37,000	44,800	54,000	64,800	77,600
15	45,000	59,900	79,300	104,400	136,800
20	54,800	80,200	116,500	168,200	241,200
25	66,600	107,300	171,200	270,900	425,000
	Annual Investment of $1,000				
Years invested	*4%*	*6%*	*8%*	*10%*	*12%*
1	$1,040	$1,060	$1,080	$1,100	$1,120
5	5,600	6,000	6,300	6,700	7,100
10	12,500	14,000	15,600	17,500	19,700
15	20,800	24,700	29,300	35,000	41,800
20	31,000	39,000	49,400	63,000	80,700
25	43,300	58,200	79,000	108,200	149,300

margin as the U.S. economy has grown and as corporate earnings and dividends have grown apace. The evidence seems compelling that, if maximum total return is your sole objective—irrespective of risk and volatility—common stocks should be your investment of choice.

While we have been dealing with the magic of compounding over periods of awesome length, it is important to realize that the same principles apply to shorter time frames that are more relevant to today's investors working to accumulate assets for their own financial futures. Table 1–7 provides a working range for considering potential capital accumulations at various (fixed) rates of return over periods up to 25 years. The accumulations are shown in two ways: (1) based on a capital investment of $25,000 at the start of the period and (2) based on regular investments of $1,000 at the start of each year during the 25-year period for a total investment of $25,000.

In my view, the most compelling message of Table 1–7 is the extraordinary difference in capital accumulation that occurs with seemingly

CAVEAT EMPTOR: ***Compounding Income or Spending It?***

In this first chapter, I have used the concept of compound total returns—reinvesting all income—to illustrate the rewards of investing. To state the obvious, however, you may not be in a position to compound the income portion of your return. Rather, you may need income to meet your everyday living expenses, especially if you are in your retirement years. The difference in return achieved by investors who accumulate assets by reinvesting their income, as compared to their counterparts who receive all of their dividends in cash, is dramatic. For example, consider an investment of $10,000 in the stock market during the 25-year period ended December 31, 1992.

- If you were in the distribution phase of your life cycle, spending your income and letting your capital appreciate, you would have received cash dividends totaling $16,800 and watched the value of your $10,000 investment grow to $45,200, a combined value of $62,000.
- If you were in the accumulation phase of your life cycle and reinvested all your income dividends, the value of your reinvested income would have reached $77,200 and the total value of your $10,000 investment would have grown to $122,300.

In both cases, the stock market provided an identical annual return of +13.1%. Yet the difference between the two accumulations—$62,000 versus $122,300—is awesome. It is accounted for solely by the magic of compounding. This example clearly affirms that the role of price appreciation in determining total return diminishes as we move from the short run to the long run. Conversely, the role of income in determining total return escalates dramatically over time. The difference between spending income and compounding income reflects the different risks assumed by the distribution phase investor and the accumulation phase investor. I shall deal in more detail with this difference in the next chapter.

trivial differences in annual rate of return. A mere two-percentage-point increase in rate of return (from +8% to +10%) increases the value of the outright investment of $25,000 from $171,200 to $270,900 over 25 years. Another two-percentage-point increase, to +12%, takes the final value to $425,000. Moving the expected return from +8% to +12%, then,

JWBT1529-c01 JWBT1529-Bogle March 12, 2015 15:55 Printer Name: Yet to Come Trim: 6in × 9in

would increase your final capital accumulation over the 25-year period by nearly two and one-half times, a staggering difference indeed. Even after ten years, an increase in return from +8% to +12% increases the final value from $54,000 to $77,600—an enhancement of $23,600, or more than 40%. So the length of time that an investment is made, in conjunction with the rate of return that it earns, ultimately determines your wealth accumulation.

Table 1–7 also expresses the importance of beginning to build your asset base *today,* versus postponing your investment until tomorrow. If you earned an annual rate of return of +10% on an outright investment of $25,000, in ten years your account would be worth $64,800. In 20 years your account would be worth $168,200. By the same token, putting $1,000 to work each year for ten years would result in a final value of $17,500. But by doing so for 20 years you would reach $63,000.

The accumulations, of course, would become stupendous if you simply raised the hypothetical rates of return to +15% or more. But it would be extremely unwise even to imply that such returns represent realistic financial goals. In the long run, any sustained return over +12% should probably be considered found money.

SUMMARY

Long-term investors ignore at their peril the principles manifested in Table 1–7. The clear message of this chapter is to maximize your capital by earning the highest returns you can over the longest period possible. Compound interest indeed may be the greatest mathematical discovery of all time for the investor seeking maximum reward. However, risk is every bit as central as reward in the establishment of your investment portfolio, so you must carefully consider what risks you are prepared to assume. Chapter 2 will analyze the risks of investing.