

# An Overview of the Fixed Income Securities Market

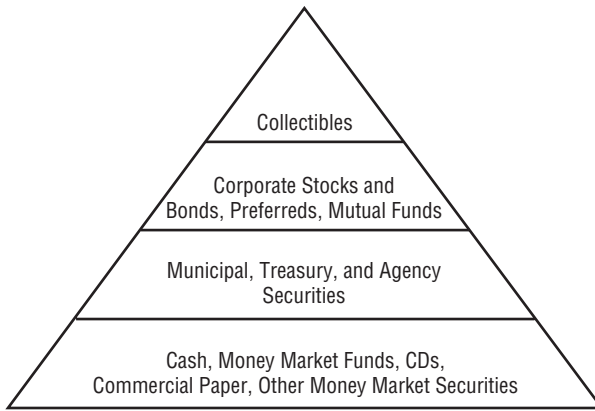
## **RECENT RISE IN POPULARITY OF BONDS**

When the stock market was soaring through the 1980s and 1990s, bonds were frequently ignored as an investment alternative. However, in recent years, investors, rocked by falling equity prices, a shaky economy, and a series of corporate scandals, flocked to fixed income securities in droves. Some were attracted to the relative safety of income and principal; others were looking for a higher or more stable potential return in a period of declining equity prices; still others were merely looking for a safe haven until the storm in equities blew over. While the market turmoil in equities has at least temporarily subsided for now, many investors have learned a valuable lesson: Fixed income securities should be an integral part of virtually everyone's portfolio. For most investors, bonds should represent an essential segment of one's financial pyramid. (See Figure 1.1.)

Despite the increased popularity of bonds, there are still many advantages of debt instruments that are overlooked by investors. Some brokers and financial planners argue that bonds and other debt instruments don't have the potential for capital gain usually associated with equities. As a result, many investors are uneasy about the bond market. In fact, bonds and other debt instruments offer investors an effective and secure way to build a nest egg for retirement. Furthermore, bonds can help people gain financial independence without causing them to accept more risk than is necessary or that they can comfortably tolerate.

The purpose of this book is to give you an understanding of the risks and rewards of including fixed income securities in your investment portfolio. This book will help you:

- Take an active role in managing risk in your fixed income portfolio.
- Apply various valuation methods to a variety of fixed income instruments.
- Learn essential bond market concepts and terminology.



**FIGURE 1.1** Financial Pyramid

- Learn how to maximize after-tax earnings.
- Utilize economic statistics to forecast the direction of interest rates.
- Gain a better understanding of the primary debt instruments.

## **DEBT VERSUS EQUITY**

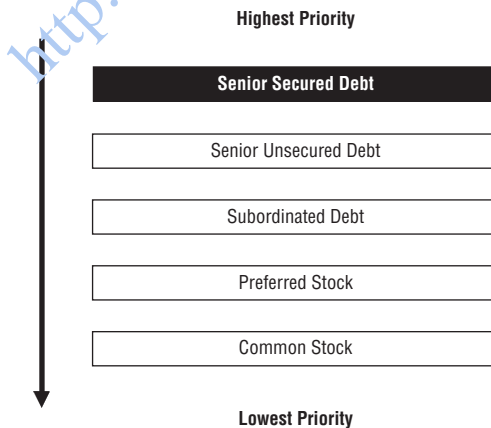
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Understanding how fixed income investments are best incorporated into your portfolio strategy requires knowing the basic differences between debt instruments (bonds) and equities (stocks). Simply stated, a debt instrument is a contractual or legal obligation of the issuer to pay you, the bondholder-investor, a predetermined rate of interest over the life of the security and, even more important, to repay the principal at the maturity date. Equities are not obligations of the issuer; rather they are ownership interests, which increase and decrease in value based on the issuer's business success or failure. Bond interest payments are contractual periodic payments, unlike stock dividends, which are paid when and if the company so chooses. As bond payments are legal obligations, any failure to meet those obligations can have dire financial consequences for the issuer. If a corporate borrower failed to meet scheduled interest or principal payments, such a default could potentially force the borrower into bankruptcy. Credit defaults resulting in a bankruptcy are not frequent occurrences. However, if a company were to go bankrupt, bondholders are at the top of the list of creditors who must be paid from corporate assets. (Secured creditors are first, unsecured creditors

next, then preferred shareholders, and then equity holders, if there is anything left). (See Figure 1.2.) Dividend payments made to common stockholders may be made only after the issuer has satisfied its obligations to pay bondholders and preferred stockholders.

### **Key Characteristics of Bonds versus Stock**

- Certain debt instruments, especially some corporate bonds and municipal revenue bonds, are often structured around covenants (maintenance of liquidity, debt, or revenue ratios). These covenants are rules by which a borrower must operate, thereby providing the primary level of protection to the bondholder, as compliance with a bond's covenants assures that there will be sufficient revenue to pay bondholders their interest and principal when due.
- Equity securities represent an ownership interest in a company. Payments of dividends are at the discretion and direction of the board of directors and the company's management rather than an obligatory payment required under a bond resolution or indenture.
- Bond prices are determined by the market, taking into account the issuer's credit ratings, the coupon payment rate, term to maturity, and market yields on other fixed income securities.
- Equity share prices reflect the perceived or expected value of the company's current and future earnings potential.



**FIGURE 1.2** Creditor Priorities in Case of Bankruptcy  
*Source:* Hamilton Floating Rate Fund, LLC.

The scheduled automatic conversion of your bond investment into cash, no later than the maturity date, is an important distinction between debt and equities. As an investor, you can tailor bond maturities in your debt portfolio to meet your future cash needs as well as to achieve a balance between the risks and rewards offered by shorter-term cyclical trend and longer-term trend changes in market interest rates. As equities are perpetual securities, converting stocks to cash requires selling the shares at whatever the market will pay. Also, the risk of loss through corporate bankruptcy is substantially higher with equities than with debt instruments because, as stated earlier, the claim of debt holders on a company's assets is superior to that of equity holders in a bankruptcy. That may be one reason why, through much of our financial history, the market has generally demanded a higher dividend yield on equities than the yield on corporate bonds, though that is far from the case today. The fundamental truth is that, if chosen wisely, corporate bonds are inherently a safer investment than equities. And there is no counterpart in the equity markets to the inherent investment safety available with government debt, especially with U.S. Treasuries. Debt instruments, offer investors greater certainty of cash flow and security of principal than you have with most equity investments.

## **CHARACTERISTICS OF FIXED INCOME SECURITIES**

The world of fixed income securities is diverse in many respects. In order to maximize the investment value of fixed income securities in your portfolio, it is necessary to understand the characteristics of these types of investments.

When you're considering investing in fixed income securities, you should first evaluate your income tax bracket, credit risk tolerance, market risk tolerance, and liquidity needs so that you can establish the right portfolio game plan.

### **Tax Bracket**

Your tax status is one of the most important factors to consider in structuring a fixed income portfolio. Knowing your federal, state, and local tax brackets and whether you are subject to the Alternative Minimum Tax is necessary to assure that your investment choices will provide the maximum after-tax return. As many bonds enjoy some form of tax exemption or preferred treatment, which we examine in greater detail in later chapters, your tax status as well as the tax treatment of the account that you are investing for is central to maximizing the yield of your bond portfolio.

Municipal bonds are debt instruments whose interest payments are exempt from income taxes. The exemption from federal income taxes is based on the Doctrine of Reciprocal Immunity, initially established by the Supreme Court in 1895, which determined that the federal government and state and local governments shall not impose personal income taxes on the interest payments on debt instruments of each other. Therefore interest income received on municipal investments is not subject to federal taxation. Also, interest paid on U.S. Treasury debt instruments is exempt from state and local income taxes. In the vast majority of cases, states do not tax the interest income generated by bonds issued within that state or by any of its political subdivisions. In addition, the interest income received on debt issued by Puerto Rico, as well as Guam and other territories of the United States, is also *generally* exempt from state and local, as well as federal income taxes (each state has its own statutes with respect to local tax treatment of tax-exempt interest income).

Interest income may also be *deferred* from taxation, depending on the type of account in which the income is generated. To make this point more clearly, if you hold taxable fixed income securities, such as Treasuries, agencies, or corporates, in an individual retirement account (IRA), 401(k), or Keogh plan or similar tax-deferred account, income generated is taxed when the funds are withdrawn, rather than when earned. This will allow you to defer taxation to a period in the future (i.e., when you may be retiring and are presumably in a lower tax bracket).

## Market Risk

Market risk is influenced by credit, maturity, and economic factors. The longer the term of the security, the greater the market risk, since there is more uncertainty as you invest farther out on the yield curve. Investors who want to make a market play, betting on falling long-term rates for example, could buy 20-year low coupon bonds, in the hope of capturing significant price appreciation as interest rates declined. Conversely, if you anticipate a rising interest rate period, you might buy shorter-term bonds, or bonds with a variable rate structure, such as auction rate securities or variable rate demand bonds (Chapter 8), to ride the rate rise. Investors wishing to minimize market risk could ladder their bond maturities, thereby creating a shorter overall average maturity yet capturing some additional yield from longer-term securities. Laddering a portfolio means buying bonds that mature over a range of time—short-term, medium-term, and long-term. For example, an investor could consider purchasing an equal amount of bonds due in 3, 5, 7, and 10 years, resulting in an average maturity of 6.25 years. This portfolio would have less market risk and a lower average yield than a portfolio made up exclusively of 10-year bonds.

Short-term debt obligations include those securities that mature or must be repaid in full relatively soon. Short-term securities have maturities that can

be as short as one day, or maturities of weeks or months, but usually less than two years. Securities maturing within one year are often referred to as money market securities. These securities include commercial paper, Treasury bills (T-bills), repurchase agreements, certificates of deposit, Eurodollar deposits, variable rate demand bonds, and auction rate securities.

Fixed income securities may contain a call option, or an option for the issuer to redeem the obligation prior to maturity. Some bonds which contain embedded call options include a call premium, similar to a prepayment penalty, so the investor receives some compensation for being taken out of the investment earlier than the original term, presumably when interest rates are lower than at the time of purchase. On those bonds that are callable, the period prior to the call date is known as the no-call period. Redemption premiums may be stated as percentage over par, such as 102 percent (par plus 2 percent), or may be stated in the form of a formula usually referred to as a “make-whole” premium. The latter is more typical in the corporate bond market, whereas the simple premium concept is typical in the municipal bond and Treasury markets. Callable bonds tend to be slightly higher yielding than noncallable bonds due to the risk the investor takes in being called out of the investment prior to maturity. The benefit of the call feature to the issuer is the ability to redeem the issue if rates fall, enabling the issuer to refinance the debt at a lower rate.

Certain securities, especially variable rate securities, carry a put option, which entitles the bondholder to tender the securities at par, or a predetermined price, under certain circumstances. This is the structure that gives variable rate demand bonds their appeal in that the holder has the option to tender, or put, the bonds back to the issuer or trustee at any time with a certain number of days’ notice, typically one to seven days. Some corporate-backed bonds carry a longer-term put option as well. The put option can work like this: Suppose you purchased a seven-year bond with a five-year put at 5 percent, and it is now five years later. Rates for similar investments are now at 6 percent, so you would be inclined to tender your bond and purchase the new bond at 6 percent. In another case, say the issuer of the bond was rated AA at the time of purchase and has now been downgraded to A. If you have a put option that is current, or active, you might put the bond and reinvest in another AA security. In both of these cases, you would receive 100 percent of the par amount with a par put instead of having to sell the bond, probably at a price less than par. This feature does provide added potential value, so put option bonds will generally be priced at a lower yield than a bond without a put option.

## **Liquidity**

An investor’s liquidity needs is another important consideration in assembling a portfolio of fixed income securities. What are your cash needs now and in

the future? Will you have any particular obligations to fund over the next several years? What are your current and future income needs? When do you expect to retire? Investing in fixed income securities means tying up cash for a determined amount of time. By identifying specific cash needs in the future, you will be able to better time your bond maturities to meet those needs.

## **Credit Quality**

Credit characteristics of fixed income securities are not homogeneous in structure or market performance. Any given investment grade corporate bond will have certain credit attributes that may cause it to have greater or lesser security than a similarly rated corporate bond, and may trade quite differently in the market due to factors unrelated to interest rates as a whole. For example, a secured single-A utility bond will tend to trade parallel to Treasuries, but an unsecured single-A telecommunications company bond may deviate from the fixed income market as a whole due to market concerns about the telecom industry. While credit ratings are an important diagnostic tool to help investors assess the risk and value of a bond, additional due diligence is required.

The credit market as a whole is divided into six segments determined by the type of debt issuer. These segments include (1) the U.S. Treasury market, (2) the U.S. government agency (GSE) market, (3) the state and local government debt market (municipal bonds and notes), (4) the U.S. corporate debt market, (5) the mortgage-backed and asset-backed markets, and (6) the foreign debt market. Each of these issuers of debt sells a wide range of debt obligations with varying maturities, from overnight to long-term, which in some cases may be as long as 100 years.

With the exception of U.S. Treasury obligations, issuers may issue debt that varies in credit quality. The difference in credit quality will depend on such factors as whether the debt has a first or subordinate claim on specific assets; what those assets are, if any; and how soon the debt must be repaid. Corporations, for example, can issue unsecured debt backed by the parent company or by an operating subsidiary. These are termed debentures, secured only by the general credit of the issuer. The corporation can also issue debt backed by a lien on, or a pledge of, specific assets. Assets that can be used as backing or collateral for the debt include real estate, equipment, credit card debt, car loans, and the like.

State and local governments issue two types of debt: general obligation (GO) bonds of the governmental entity and supported by its taxing authority, and revenue bonds backed and supported by a stream of revenues or fees pledged to the bondholders, usually from the specific project that is being financed such as a bridge or a toll road. GOs, with their broader sources of financial backing, are generally viewed as having stronger credit than revenue bonds,

which have a more limited financial backing. In certain cases, a municipal issuer may sell bonds backed not only by the issuer's full faith and credit and taxing authority like a GO bond, but also by a pledge of certain revenues derived from the project financed. These bonds are referred to as being double-barreled. There is also a subset of revenue bonds that includes private activity bonds, which are bonds issued by a municipality for the benefit of a private entity, such as a college or cultural institution. The source of repayment is from a pledged stream of revenue, but the revenue stems from the end user—the college, for example—rather than the municipality or agency issuing the bonds. As will be discussed in the “Municipal Bonds” chapter later on (Chapter 10), private activity bonds have other tax considerations that the investor should take note of.

There is a third category of municipal debt called prerefunded (prere) or escrowed to maturity (ETM) bonds. These are municipal bonds that have been technically defeased (legally repaid, although still outstanding) by providing an escrow account of U.S. government-backed obligations that guarantee the investor timely payment of interest and principal in lieu of payments from the original issuer. Investors purchasing these securities get the best of both worlds: tax-free income and gilt-edged security.

As previously noted, a key distinction of debt instruments is the contractual obligation of the debtor or issuer of the debt to pay you, the creditor or owner of the debt instrument, a set rate of interest at prescribed times, as well as to repay the principal or face value of the debt at its specific maturity date. Whether the issuer actually meets those obligations depends on the issuer's ability and willingness to do so. The market makes a risk judgment on that ability and willingness to pay debt interest and principal based on past experience and the underlying financial strength of the debtor to meet its credit obligations. The Orange County debacle in the early 1990s is a case study in how a wealthy California county had the ability to pay, but initially not the willingness to pay. To make bondholders whole, the county ultimately had to raise taxes and cut expenses. (See Chapter 10.)

Investors generally rely on one or more of the three most widely recognized independent credit rating companies, Moody's Investors Service, Standard & Poor's (S&P), and Fitch Ratings Ltd. to assess the degree of risk of default assigned a given issuer. Each rank or gradation of risk is assigned a letter grade, with those considered to be of highest quality and lowest credit risk given a triple-A rating. The lowest rating grade, short of default, that may be assigned is C, suggesting a high risk of default. Debt issues assigned a Baa rating by Moody's, a BBB rating by S&P or Fitch, or higher are considered to be investment grade and generally (but not always) considered relatively safe. The term *high grade* generally refers to issues rated from double-A to triple-A. Bonds rated below investment grade are deemed “speculative grade” issuers. Debt issues rated below triple-B are considered high-risk and are commonly referred to as “high yield” bonds or “junk bonds.” Table 1.1 shows corporate

**TABLE 1.1** Corporate Long-Term Rating Categories

Moody's	S&P	Fitch	
Aaa	AAA	AAA	} Investment Grade
Aa	AA	AA	
A	A	A	
Baa	BBB	BBB	
Ba	BB	BB	} Speculative Grade
B	B	B	
Caa	CCC	CCC	
Ca	CC	CC	
C	C	C	
D	D	DDD, DD, D	Default

long-term rating categories by the three largest nationally recognized rating agencies, Moody's, S&P, and Fitch.

Each agency modifies its ratings from Aa or AA to Caa or CCC with a modifier denoting strong, medium, or weak quality within each rating rank. For example, Moody's-rated A1 credits are stronger than A2, which is stronger than A3 credits. Similarly, S&P and Fitch designate their modifiers as "+" or "-", as in A+ being superior to A, which is superior to A-.

Each agency also has a unique rating designation for short-term instruments such as commercial paper or municipal notes. Table 1.2 lists corporate short-term ratings used by the big three.

S&P and Fitch also use a "+" modifier for their prime short-term rating, for example A-1+. For municipal credits, Moody's short-term ratings use a Municipal Investment Grade (MIG) rating system, similar to the corporate ratings. S&P also uses the label "SP" for its municipal short-term ratings.

While buying only investment grade debt is a sound way to mitigate credit risk, it is not a panacea. Some investment grade debt issuers have defaulted and some have gone bankrupt (remember Enron?). That dire outcome

**TABLE 1.2** Corporate Short-Term Rating Categories

Moody's	S&P	Fitch	
P1	A-1	F1	} Prime
P2	A-2	F2	
P3	A-3	F3	
NP	B, C, D	B, C, D	} Speculative Grade

is relatively rare in the high grade market. Thus, the risk of default can be reduced, but unfortunately not completely eliminated, by investing in top-rated agency, corporate and state and local government debt issues. By purchasing a number of *different* high-grade bonds from different issuers, you will further reduce the risk an adverse impact on your overall portfolio if any one of these debt issuers should default.

Not all securities with the same credit rating are equal. Within a given rating level, there are varying characteristics that make some bonds more creditworthy than others. For example, AAA-rated U.S. Treasury securities are considered to be without risk of default. It is therefore a superior credit to an unguaranteed AAA-rated government agency, or similarly rated corporate or state and local government debt issue because the U.S. Treasury has the power to print money for the repayment of its obligations. Similarly, state and local government debt may be considered a marginally stronger credit than identically rated corporate debt as the municipality has the authority to levy taxes necessary to honor its debt obligation. Even within a classification of bonds, the same holds true; a municipal general obligation bond, backed by a full faith and credit pledge, may be considered more creditworthy than similarly rated revenue bonds, backed by revenues from a specific project. In the corporate bond market, first mortgage utility bonds rated BBB may be viewed as more secure than a BBB rated debenture with no assets pledged against it. The lesson here is not to depend totally on the published rating. Investors must utilize ratings in conjunction with diversification strategies and good old common sense.

## **COMPONENTS OF FIXED INCOME SECURITIES**

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Fixed income securities have three essential attributes: (1) *coupon rate* (on which the interest payments are calculated), (2) *maturity* (term of the investment), and (3) *price* or *yield* (market value). Distinctions among debt instruments also include credit rating, interest payment frequency and callability. There are even debt instruments that compensate the holder for changes in the rate of inflation and debt instruments whose coupon rate changes at set intervals, as in the case of variable rate securities and stepped-coupon securities.

A debt instrument, regardless of its maturity and issuer, is a contract between the issuer and holder. The contract obligates the issuer to pay you, the holder, a stated interest payment on the dates specified. Usually the stated annual interest payment, or coupon, is paid in two installments (i.e., every six months). The annual payment date typically falls on the same day of the year designated for the ultimate redemption or maturity of the debt instrument. For example, if

the specific day the issuer has promised to pay off the debt, its maturity date, is April 1, 2035, the semiannual interest payments will typically be made on April 1 and six months later, October 1, each and every year until the maturity date of the bond. If the annual coupon rate is specified as 6 percent, then 3 percent will be paid each April 1 and 3 percent each October 1. While semiannual payments are the most common, other payment intervals are utilized as well. Some fixed income instruments pay monthly (i.e., Ginnie Maes) while others may pay annually. Some securities, like savings bonds, T-bills, and zero coupon Treasuries, are issued without a coupon, paying interest at maturity.

The coupon rate is the contractual interest rate paid for the life of the instrument. It does not change, except in variable rate securities and, in rare instances, when a change was specified in the original offering agreement (commonly referred to as a step-up security). Thus, a 6.25 percent coupon rate pays 6.25 percent per annum until the obligation matures.

The market interest rate or market yield (yield to maturity) is a different concept. Market rates can change minute by minute and are influenced by all the forces that affect the marketplace, including fundamental or economics-related events, supply and demand and technical factors.

## **THE BASICS OF PRICE**

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While the coupon on a fixed rate bond or note is constant (set for the life of the bond), the market yield varies for that security, depending on numerous market forces. Thus, for most of the life of the debt instrument, the market yield will be higher or lower than the coupon yield. That difference between coupon and market yield, if any, determines a bond's price. When the coupon and market yield are identical, for example both 5.5 percent, the price of the bond will be par, or \$1,000 per \$1,000 bond. But if the coupon yield is 5.5 percent while the market yield has declined to 5.25 percent, the stream of interest payments represented by the 5.5 percent coupon yield cannot be replaced by buying a new comparable or virtually identical debt security. That makes the existing 5.5 percent coupon-bearing bond more valuable as it will pay \$55 per year for each \$1,000 bond, whereas a new bond priced at par would pay only \$52.50 per year. To compensate for its added value, the price of the existing bond will have to rise sufficiently, depending on its maturity, to recalculate the yield from 5.5 percent to the 5.25 percent market yield, thus raising the price of the bond.

The calculations that determine the yield to maturity, which involve the coupon rate, the price of the debt instrument, and its maturity date will be explained later (Chapter 3). For now, it is important to recognize that when market yields fall, debt prices rise. When the market yield falls below the

coupon yield, the bond's price rises above par, or above \$1,000 per bond. This bond is trading at a "premium." The same principle operates in reverse. When market yields rise, bond prices fall. When the market yield rises above the coupon yield, the debt instrument's price falls below par. This bond is trading at a *discount*. How much the price falls below or rises above par is determined by a present value calculation using coupon, market yield, and the maturity date, or call date.

By now, you should understand that if market yields are rising and are projected to continue rising, then the price of any given fixed income debt instrument is falling and will likely continue falling. Your investment strategies based on your view that interest rates are likely to continue rising, causing the prices of debt instruments to trend lower, vary. If you are a buy-and-hold investor, intermediate market movements need not disturb you. But, if you are a market timer, whether to a greater or lesser extent, a market movement can and should be a call to action.

Your decisions will depend on what you expect to happen. Are bond yields likely to rise only slightly because of sizable new supply coming to market, only to retrace their rise after the sales? Is the rise in interest rates a cyclical rise that is likely to be extended and sustained for many months or years? Or is the rise potentially a very long-term phenomenon that leads to higher and higher yields at each successive cyclical interest rate peak? The very same questions can be posed with regard to signs of declining bond yields and consequent rising prices on debt instruments. What is the direction of the economy and Federal Reserve policy? What is the current and likely future rate of inflation? These and other considerations all go into deciding whether interest rates are high or low, or rising or falling, and how high or low they are likely to go. For a buy-and-hold investor that determination is not essential, but for a market timer it can be critical.

## **FACTORS AFFECTING BOND PRICES**

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There are numerous factors, both fundamental and technical, that impact bond prices. *Fundamental* factors include overall economic activity and the ensuing inflationary pressures, unemployment, and budget and trade deficits. Credit concerns with specific issuers may negatively affect the price of an issuer's securities as well. *Technical* factors influencing supply and demand of the bond market in general as well as particular bonds can lead to significant price movements. These technical variables may be a bit more difficult for investors to grasp, but a brief look into the U.S. Treasury's quarterly refunding auctions may help explain the effects of technical influences of supply and demand.

The Treasury's quarterly refunding often serves to drive market yields up temporarily due to the sheer size of the Treasury's bond sale. Indeed, after the auctioned bonds and notes are successfully distributed to market investment

portfolios (rather than just in short-term trading accounts), market yields often revert to the levels prevailing before the auction. The regularity of this phenomenon is so pronounced that it is sometimes called a Duke of York, after an English nursery rhyme. For those unfamiliar with it: “The Duke of York had ten thousand men; he marched them to the top of a hill, then marched them down again.” Like the Duke of York and his men, Treasury market yields have a tendency to rise immediately prior to the auction, and once the yield rise has accomplished its purpose—to entice buyers—it tends to reverse. In order to distinguish this type of yield behavior from cyclical yield patterns it is useful to keep the timing of the Treasury’s debt refunding in mind. The U.S. Treasury is now refinancing its debt monthly, but there is usually a more important impact on market yields in the Treasury’s quarterly auctions, which take place in the first full week of the middle month of each quarter, more specifically early February, May, August, and November. These market yield gyrations do not affect merely Treasuries. They often affect yields on corporate bonds as well. And if there are outsized corporate bond offerings, they too can temporarily affect Treasury yields. It is a two-way street. That is another way of saying all the credit markets are interrelated. A major change in the supply or demand for credit in one market has a ripple effect upon all the other credit markets to a greater or lesser extent.

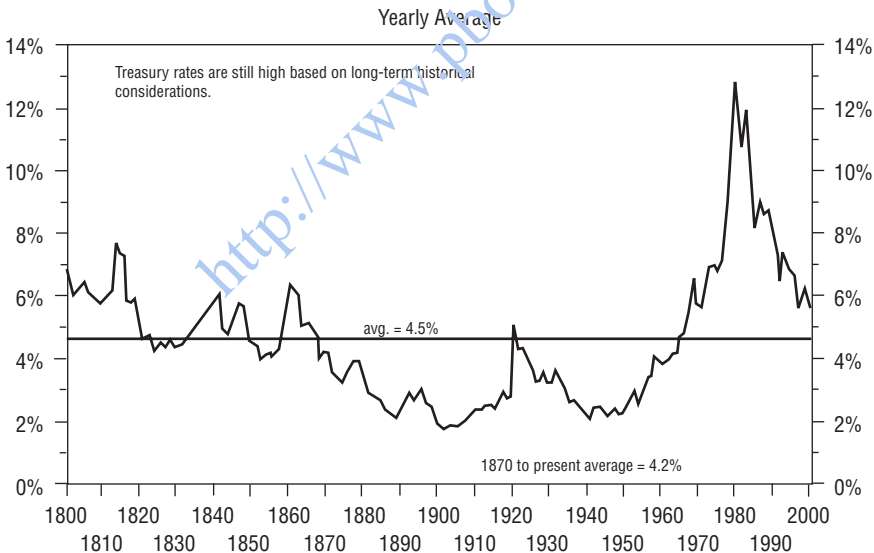
There is a special reason why the Treasury auctions have an outsized effect on Treasury yields and why sizable auctions in other markets do so as well. To put it succinctly, it reflects the short sale of similar maturity Treasuries by the underwriting firms in order to create a more favorable market for the new debt offering. The underwriting firms offering a new corporate issue also sell comparable maturity Treasury issues short for exactly the same purpose. For those who do not recall what a short sale is, it is the sale of borrowed financial instruments, in this instance Treasury bonds. The sale of borrowed bonds has much the same market price depressing and yield raising impact as the sale of bonds that are not borrowed. There is, of course, an important difference. The sale has to be reversed. When it is, the market impact is reversed as well. Now you know the secret of the Duke of York yield phenomenon around auctions. Sometimes dealers try to outwit the market into believing that no rise in yield is necessary to attract buyers to the auctions. They may even bid up the price and lower the yield in advance of major auctions. If they are successful in this tactic, the auction can be even more profitable for them. But, what if the auctions are not successful? If the auction generates less market enthusiasm than expected at the yields offered, meaning that the underwriters are stuck with too much of the new issue, yields will subsequently soar and market prices will plunge after the auction (rather than before) in an underwriter scramble to unload excessive positions and place the issue with their customers. This example is an object lesson of technical factors influencing not only Treasury securities but corporate yields and prices as well.

## ARE TODAY'S BOND YIELDS HIGH OR LOW?— A HISTORY LESSON

**By Philip Braverman**

Press reports in recent years have often referred to interest rates as being extraordinarily low. Financial news story headlines have cited particular interest rates or yields as the lowest in four decades. The clear implication is that such low levels of interest rates are unsustainable, and that yields are likely soon to skyrocket. To gain perspective on what is or is not a low level of interest rates, and whether recent yield levels are sustainable, requires a look at interest rates over an extended period of time.

A review of U.S. Treasury bond yields over the past few decades would certainly seem to support the view that recent lows in yields are extraordinary. (See Figure 1.3.) The monthly average Treasury bond yield hit an all-time high of 14.68 percent in October 1981, in the midst of the August 1981–November 1982 recession, and has been declining in an irregular pattern ever since. The lowest monthly average Treasury bond yield in the 1980s was 7.27 percent, reached in July 1986 (down over 7 percentage points from



**FIGURE 1.3** Long-Term Treasury Rate 1800–2000

Yearly Average

Sources: Federal Reserve Board, Homer & Sylla. Through August 2001. Data from Federal Reserve Bank of Dallas, “Selected Interest Rates.”

Courtesy Hoisington Investment Management Company, Austin, Texas.

the October 1981 peak). From that July 1986 low, yields rose again, reaching a monthly average high of 9.32 percent in August 1988 (2.05 percentage points above the prior low). The next low was 5.94 percent in October 1993 (down 3.38 percentage points from the preceding high). Treasury bond yields then moved up, briefly reaching 8.08 percent in November 1994, the last month above 8 percent (up 2.14 percentage points from the prior low). Now, a decade later, the 30-year Treasury bond yield remains below 6 percent and the 10-year note yield remains below 5 percent, up modestly from their June 2003 lows of just above 4 percent on the 30-year and 3 percent on the 10-year.

Let us review the pattern and magnitude of Treasury bond yield changes more closely. From their 14.68 percent monthly average peak in 1981, Treasury bond yields declined 7.41 percentage points to the 1986 low. They then rose 2.05 percentage points to their 1988 high, before dropping 3.38 percentage points to the next low in 1993. Next came a 2.14 percentage point Treasury bond yield rise to a 1994 peak before dropping nearly four percentage points to the June 2003 low.

There are some important observations to make about this Treasury bond yield performance over the past two decades of the preceding century and the first half of the first decade of this century. The trend of yields has continued decidedly downward. Since 1981, each bond yield peak has been lower than the previous peak and each bond yield trough has been lower than the previous bond-yield low. The declines from the peaks to troughs are significantly larger than the yield increases from trough to peak.

The durations of the declines in yields are significantly longer than the periods of rising yields. The three declines stretched for 57 months (October 1981 to July 1986), 62 months (August 1988 to October 1993), and 104 months (November 1994 to June 2003). These periods of declining yields were separated by two relatively brief periods of rising yields, 25 months (July 1986 to August 1988) and 13 months (October 1993 to November 1994). The conclusion to be drawn from this pattern is that any cyclical upturn in yields is likely to be relatively short-lived, at least if the past secular trend is to be extended.

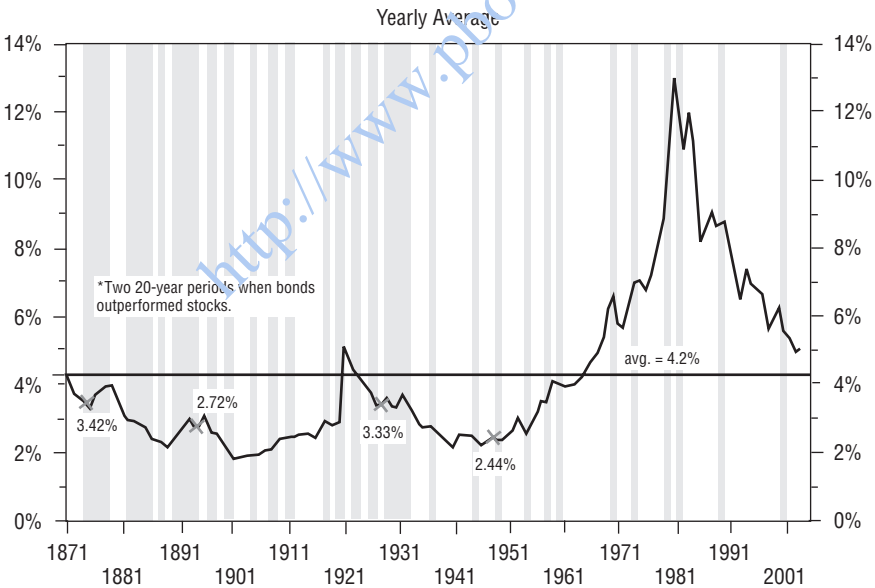
From the point of view of the trend, as of this writing there has been no trend reversal. To demonstrate a trend reversal would require a higher Treasury bond yield peak than 8 percent and a higher subsequent trough than 4 percent. Thus, though certainly possible, it is by no means clear that the yield downtrend has run its course. This view runs against the consensus wisdom. But reality often does.

At this point, you might well be asking whether it is really possible for bond yields to fall below their 2003 lows. From the perspective of financial history, the answer is yes. Long-term Treasury bond yields were below 3 percent for the four decades between 1880 and 1920, and were even briefly below 2 percent in the late 1890s and early 1900s. Treasury bond yields were

again below 3 percent for most of the three decades from the 1930s Great Depression through the 1950s. (See Figure 1.4.)

Let's examine another question you may be asking. Are 4 percent to 5 percent Treasury bond yields high or low? Most observers would give the wrong answer. Based only on the limited experience of the past few decades, 4 percent to 5 percent Treasury bond yields may seem low. But the correct answer, using the long sweep of historical data, is that such yield levels are only average. Since 1870, Treasury bond yields have averaged 4.6 percent. That includes the formative years of U.S. history, the War of 1812, and the U.S. Civil War, when Treasury bond yields exceeded 6 percent in the midst of heightened concern over inflation. Indeed, such high Treasury bond yields were understandable at the time in view of the world financial community's serious concern over the safety of such investments, especially considering doubts over the very survival of the United States as an independent unified nation.

If the period prior to 1870 is excluded to avoid unnecessarily distorting the data by the inclusion of war-induced interest rate spikes, the average U.S. Treasury bond yield falls to 4.2 percent for the period from 1870 through 2000. It could be argued that there are still two major distorting periods re-



**FIGURE 1.4** Long-Term Treasury Rate 1871–2004  
Yearly Average

Sources: Federal Reserve Board, Homer & Sylla. Through September 2004.  
Courtesy Hoisington Investment Management Company, Austin, Texas.

maintaining, the low interest rates in the Great Depression, which pushed Treasury bond yields below 3 percent, and the inflationary aftermath of World War II, reinforced by the Cold War (the very expensive arms race between the Soviet bloc and the West), which again pushed Treasury yields above 6 percent. If these two periods were removed, average Treasury bond yields would fall well below 4 percent.

This 4.2 percent average Treasury bond yield since 1870 and the well under 4.0 percent average yield excluding the aberrations of both the Depression and the Cold War can be used as a guide to investing. When Treasury bond yields, not just Treasury 10-year note yields, are around 4.0 percent, the levels may at worst be viewed as neither high nor low, just average. Thus, higher Treasury bond yields, such as those prevailing currently, should be viewed as attractive.

But that may not be optimistic enough. Treasury long term bond yields might well be returning to the averages experienced before the Cold War when below 4.0 percent bond yields were typical and even below 3.0 percent bond yields were at times commonplace. That possibility would of course make Treasury bond yields above 4.0 percent far more enticing for the long-term investor.

There is another way of assessing Treasury bond yields to see if they are high or low. That is by looking at the real Treasury bond yield after deducting inflation. Since 1871, the real Treasury bond yield has averaged 2.1 percent after deducting the measure of inflation called the GDP deflator, which by coincidence also averaged 2.1 percent since 1871. This real bond yield was well above this 2.1 percent average level in the 1980s, when inflation fears were running rampant. The real Treasury bond yield has since gradually declined toward its long-term average, but it's not there yet. With various key measures of inflation, especially core inflation, trending below its 2.1 percent historic average and the real Treasury bond yield above its long-term average, both real and nominal Treasury bond yields can be viewed as still high.

These bond investment decision-making approaches are different from cyclical analysis, which will be discussed in Chapters 5 and 6. None of these approaches will prevent bond yields from rising when you expect them to decline. But they will significantly increase the probability of profitable investment in bonds. They have for me.

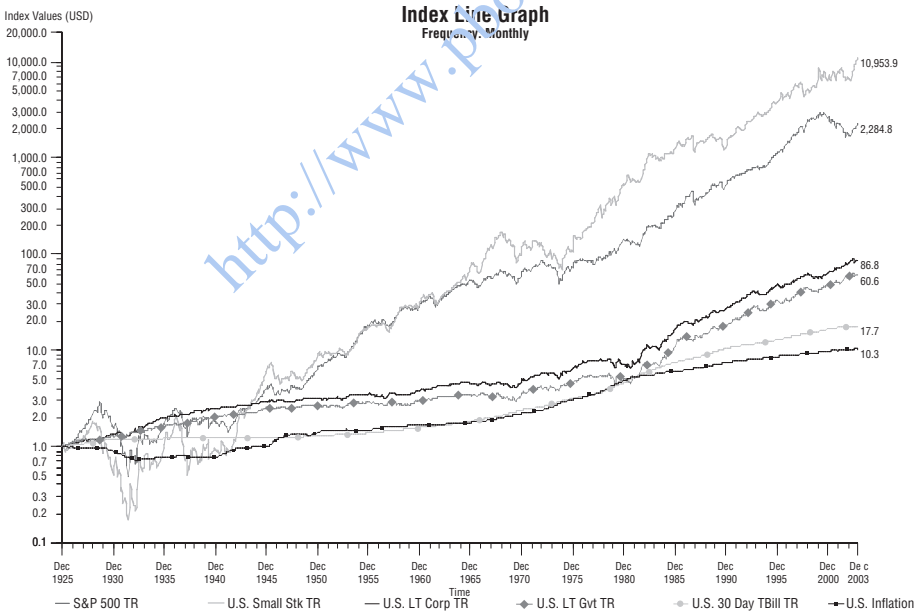
## **SORTING OUT FACT FROM FICTION**

What about the often-repeated contention that an investor will almost always do better in stocks than in bonds? As just noted, the market rate of interest typically available on bonds and other medium- to long-term debt instruments is currently significantly higher than the rate of dividend return on eq-

uities. That has been the case for a number of decades. But, stock proponents counter with the argument that it is the *total return* on a portfolio, including price changes, that counts. And the total return on portfolios of equities has historically outperformed that on bonds (see Figure 1.5).

There are, however, a number of holes in that argument. It is widely recognized that the risk of loss through default or volatile market price behavior is higher in equities. Shouldn't the returns for equity portfolios and debt portfolios be risk adjusted? In addition, the portfolio earnings comparisons are usually biased in favor of equities. Since many stocks pay little or no dividends, a more appropriate comparison is probably between the price performance of zero coupon bonds and equities. Stocks have not always outperformed portfolios of zero coupon or even coupon-paying bonds.

For example, a portfolio of U.S. Treasury zero coupon bonds maturing November 15, 2020, earned an average 9.72 percent per year over the past 10 years and 10.31 percent per year since the end of 1989. The Merrill Lynch 10+-year-maturity Treasury securities index since year-end 1989 earned a 9.17 percent average annual return. Different maturity zero coupon U.S. Treasuries earned similar returns. The U.S. Treasury zero coupon bond



**FIGURE 1.5** Cumulative Wealth

Source: "Cumulative Experience for Five U.S. Asset Classes," by Campbell R. Harvey of the Fuqua School of Business, Duke University.

STRIPS maturing November 15, 2015, earned an average 9.46 percent over the past 10 years and 9.95 percent since 1986.<sup>1</sup>

Similar returns would have been achieved in zero coupon bond mutual funds that invest primarily, though not exclusively, in U.S. government and agency debt securities. For example, on February 1, 2004, the American Century Target funds reported total gains averaging 8.81 percent in the past 10 years and 10.34 percent since 1986 on its 2015 maturity fund. The average gains on its 2015 Target fund were 8.81 percent in the past 10 years and 10.64 percent since 1989. These returns were actually lower, though still impressive, after fees and expenses.<sup>2</sup>

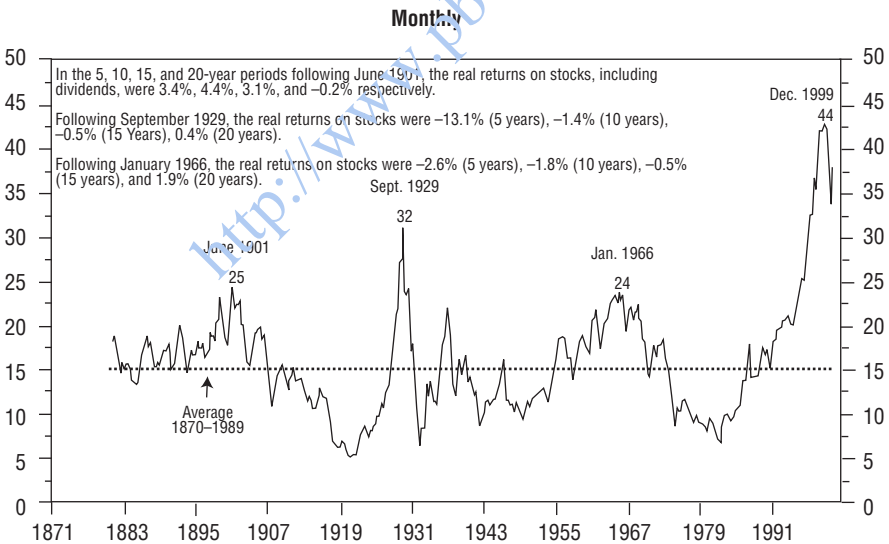
It is important to note that the actual return on a portfolio of U.S. Treasury zero coupon securities or a bond fund investing in zeros would have been made considerably higher than those just cited by choosing the most advantageous sector of the zero maturity yield curve. How an investor can accomplish that will be explained in subsequent chapters. And you can improve your relative investment gains regardless of whether interest rates decline, remain the same, or even rise, provided you follow the advice that will be spelled out in Chapter 19 for “riding the yield curve.”

As just noted, even when a portfolio of equities earns more than a portfolio of bonds over some given holding period, the higher return was partly, if not entirely, because of the assumption of greater risk. One way of viewing that risk is whether the prices reached on such investments are, by some objective standard of measurement, within or outside a historically normal range. If the prices are high relative to the long sweep of history of such investments, they may be considered to have been in unsustainable speculative territory (consider the stock market during the 1990s and the dot-com bubble). That is the case with equity prices, but not so with fixed income securities markets as a rule. The rise in equity prices in the 1990s essentially was a drive ever deeper into speculative territory. That can be discerned using such standard measures of equity value as the price-earnings (P/E) ratio. It was certainly not because the dividend rate on equities, expressed as a percentage of return on every \$100 invested, exceeded the percentage market rate of interest on the same \$100 invested in a portfolio of bonds.

Much of the gain in the price of equities over recent decades did not come as a proportionate response to the rise in corporate earnings. Instead, it came from bidding up the market price it took to purchase each dollar of earnings and each dollar of dividends. To put it another way, the speculative binge in equities in the 1980s and 1990s was made possible by (1) market acceptance of what proved to be an unsustainable long upswing in P/E ratios to levels well above their long-term trend average, (2) a pronounced decline in the rate of dividend return, and (3) various forms of creative accounting and corporate malfeasance that artificially inflated earnings or hid losses. Even Federal Reserve Chairman Alan Greenspan, in a speech to the American Enterprise Institute in December 1996,

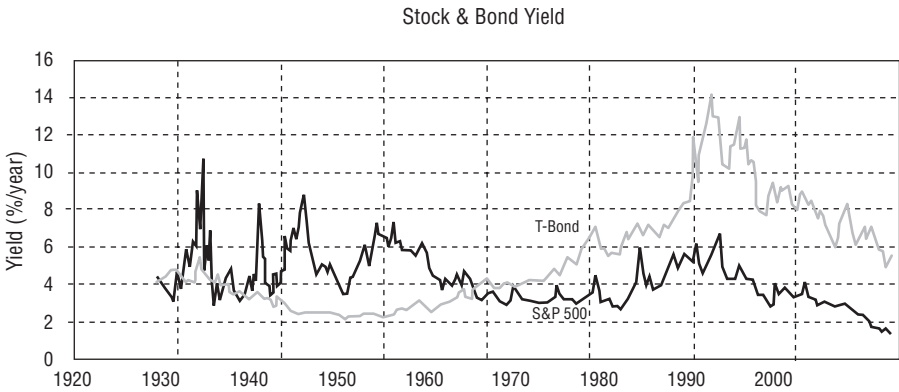
said that the equity market had “unduly escalated asset values” and coined the phrase “irrational exuberance” to describe the market’s expectations of equity prices. Since Greenspan’s warning, the stock market has become further extended, with the S&P 500 Index increasing by an additional 57%! Thus, there is a good reason to doubt that there will be a near-term extension of such risky trends as those of the 1990s. Indeed, it may be prudent to anticipate an opposite trend. (See Figure 1.6.)

Historical experience suggests that it is far more likely that there will be a reversal in both the trend rise in the price-earnings ratio and the trend decline in the rate of dividends back to more normal relationships. The same reversal process is likely in other traditional measures of equity value. Those measures also suggest that equity prices not only are unlikely to repeat their heady rate of rise in the 1990s, they may not even exceed high-quality bond interest rates over the next decade. Such a trend reversal, called a reversion to the mean, will tend to return these ratios back to their long-term trend average. But that reversion to the mean is typically achieved by a pronounced overshooting of the long-term averages. For example, every time the average P/E ratio has previously exceeded 20, it has subsequently receded to below 10, not just to the long-term average of 15. As is evident in Figure 1.7, the dividend yield on the



**FIGURE 1.6** Price-Earnings Ratio 1881-1999

Sources: Bureau of Labor Statistics; Rober Shiller, Yale University. Through June 2001 est. Earnings through Q1. Numerator: Real S&P Composite Stock Price Index. Denominator: 10-year moving average of real S&P Composite earnings. Courtesy Hoisington Investment Management Company, Austin, Texas.



**FIGURE 1.7** S&P 500 Dividend Yield versus Treasury Bond Yield

*Source:* The S&P 500 Dividend Yield, <http://cpcug.org/user/invest/b&csyield.gif>, from Harry Rood, "The Big Picture: Index to Commentary on Long-Term Market Trends," <http://cpcug.org/user/invest/bigpic2.html>. Copyright © 1975–1997 HR Consultants.

Standard & Poor's 500 index may not just rise from its recent under 2 percent level to its 4 percent long-term average. Rather, the dividend yield may rise to even higher levels, such as 5 percent or 6 percent, as it has in the past when dividends previously ended a long-term downswing. These historical perspectives suggest that until the long-term imbalances in the P/E ratio and dividend return are corrected, and confidence in corporate governance and corporate accounting standards is established, there is a greater vulnerability in equities than is widely recognized.

There is a further possible time bomb awaiting the equity market when the baby boomer generation begins retiring. The problem stems from the consequent heavy liquidation of the retirees' equity portfolios, a process that is likely to extend for a couple of decades, beginning in about 2011. To better understand this problem it is necessary to remind the reader of a very serious potential defect in the heavy reliance of retirement portfolios on equities. That defect stems from the need to liquidate equity holdings in order to meet retirement spending needs. Except for that portion of required retirement distributions that come from dividends, the remainder is dependent on prevailing equity market prices at the time the funds are needed. If there is a concentration of selling of equities to meet retirement needs, it is likely to swamp any offsetting domestic buying. It is primarily a problem of demographics. In the critical decades, there will be far more retirees added each year domestically than new additions to the labor force. Moreover, the selling by the average retiree will far exceed net equity purchases by the average new labor force entrant. The result could be a prolonged equity bear market that crimps the spending power of retirees.

There is of course a counterargument (there always is) that may mitigate or possibly negate such concerns. The counterargument is that new entrants to the middle class in the developing world will produce sufficient foreign buying of U.S. equities to lessen or offset the impact of domestic retiree selling. Whether that is true remains to be seen.

The bottom line is that there is a basis for concern over excessive reliance on the equity market for retirement savings in the critical decades of baby boomer retirement. The solution to that uncertainty can be increased reliance on debt instruments for more assured interest and principal payouts in retirement. Nothing is without some element of risk. But with a portfolio of high-grade bonds and U.S. Treasuries, your cash flow income in retirement is dependent on the coupon interest yield rate return, not on the pricing whim of the marketplace.

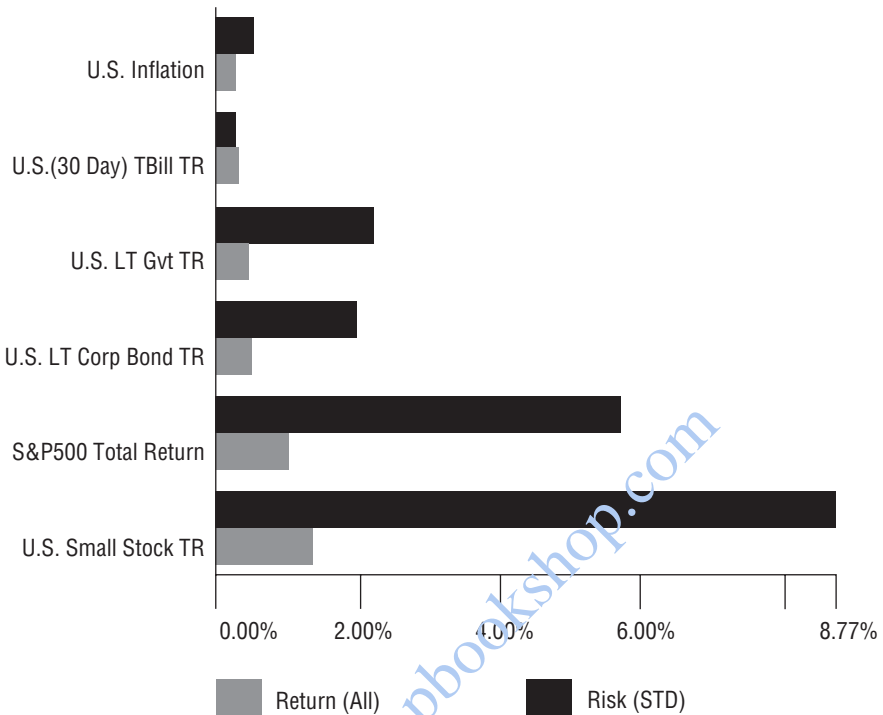
While equity price increases over time are certainly not precluded, they may be restrained. That is not to say that equities do not have a place in your portfolio. They do. But debt instruments, in a properly structured portfolio, deserve greater attention than they are usually afforded. Given the perspective of history, the return on long-term high-grade debt instruments may turn out to be not only the safest return, but also the most prudent choice for a high return for conservative investors with a long-term investment horizon employing a buy-and-hold strategy, which will be discussed throughout this book.

One of the key points for investors to recognize is that the coupon interest payment on a bond is generally a more dependable source of income than the dividend payment on a stock. The return of your investment principal at a bond's maturity is far more assured than is the return of your principal invested in stocks by selling at any given point of time. It may be an old saying, but it is still worth repeating: "The return *of* your principal is far more important than the return *on* your principal." On well-selected bonds and shorter-term debt instruments, you can have both a favorable return on your principal as well as the eventual return of your principal. (See Figure 1.8.)

## **INVESTMENT STRATEGIES—BUY-AND-HOLD VERSUS MARKET TIMING**

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Regardless of whether one invests in equities, debt instruments, or both, there is an ongoing debate as to what investment strategy is more effective. With debt securities there are essentially two opposing strategies. One approach is to remain fully invested through all the phases of the business or interest rate



**FIGURE 1.8** Risk versus Return

cycle, called a buy-and-hold strategy. The alternative is to time investments both to take advantage of periods of rising market prices and to avoid or minimize the risk of loss in the periods of declining market prices. This latter approach is called, appropriately enough, “market timing.”

What are the arguments in support of the buy-and-hold strategy? Those who favor staying invested throughout any up and down changes in investment prices have a number of concerns. Despite the seemingly repetitive nature of cycles in stock or bond prices, they argue that the essential problem with market timing is the difficulty of correctly forecasting changes in market direction. As a consequence, they believe market timing will worsen overall portfolio performance. They contend more income is actually lost by staying out of the market when a price downturn is anticipated, because too often there is a price rise rather than the expected downturn. There is also an opportunity cost in keeping one’s funds uninvested, anticipating a bond market decline (increase in yields). For example, an investor with cash idling in a

money market mutual fund or a bank yielding less than 1 percent is giving up potentially more than 4 percent tax-free by not buying a long-term municipal security. By holding cash for a two-year period anticipating an upward interest rate move, the investor has now forgone some 8 percent in interest income. Interest rates need to rise significantly to make up this opportunity cost.

While forecasting is more an art than a science, it can potentially be done successfully and thereby significantly improve your investment results. The same investor sitting on cash for a short-term period during a significant bond market decline (a large increase in market yield) will be rewarded handsomely, far offsetting any opportunity cost. Your strategy should match your risk tolerance, financial sophistication, and available time and interest in following the financial markets.

Whether you choose market timing, buy-and-hold investing, or a combination, you can more readily employ either approach with bonds than with stocks. The reason: Bonds automatically turn into cash at maturity and pay a steady, reliable stream of interest payments. For a buy-and-hold portfolio strategy, bonds can more readily provide the cash for retirement or other purposes than can equities, which require periodic selling, at possibly inopportune times, to meet spending needs. It may also be that the cyclical swings in equity prices are less predictable than in bond prices. If that is correct, either strategy is more likely to be successful with debt instruments.

### **Laddering a Portfolio**

Briefly introduced earlier, portfolio laddering is an investment strategy that perfectly applies to fixed income securities investing. Laddering is a technique that involves purchasing bonds with discrete maturities across a range of the maturity spectrum in order to (1) mitigate market risk and/or (2) fund future financial obligations. In the first case, investors create their laddered bond portfolios to capture yield across the yield curve and to set up a reinvestment regimen in order to dollar cost average. As each maturity arrives, the investor purchases a new maturity to replace the original. This strategy provides liquidity if the investor should need cash. Since the investor is making each reinvestment or rollover purchase at the current market rate, this should, over the life of the portfolio, yield the bond market's average rate of return for that maturity range.

If an investor is investing for a specific financial obligation, such as college, laddering is the best solution. If you know that you will be required to fund payments of \$25,000 per year for four years beginning 10 years from now, you can begin funding that obligation today by purchasing

bonds (zero coupon or current coupon) with maturities coinciding with the payment dates. Zero coupon securities are excellent instruments to fund this type of portfolio as you purchase the desired maturity amount at a discount, such discount being the interest earnings that will be paid at maturity.

These techniques are examined in detail in Chapter 18.

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