# chapter 2

# Investment Alternatives

**Chapter 2** explains the most important investment alternatives available to investors, ranging from money market securities to capital market securities—primarily, bonds and stocks—to derivative securities. It organizes the types of financial assets available in the money and capital markets and provides the reader with a good understanding of the securities that are of primary interest to most investors, particularly bonds and stocks. The emphasis is on the basic features of these securities, providing the reader with the knowledge needed to understand the investment opportunities of interest to most investors. Financial market innovations such as securitization are considered.

Although our discussion is as up to date as possible, changes in the securities field occur so rapidly that investors are regularly confronted with new developments. Investors in the twenty-first century have a wide variety of investment alternatives available, and it is reasonable to expect that this variety will only increase. However, if investors understand the basic characteristics of the major existing securities, they will likely be able to understand new securities as they appear.

# AFTER READING THIS CHAPTER YOU WILL BE ABLE TO:

- Identify money market and capital market securities and understand the important features of these securities.
- Recognize important terms such as asset-backed securities, stock splits, bond ratings, and ADRs.
- Understand the basics of two derivative securities, options and futures, and how they fit into the investor's choice set.

### Organizing Financial Assets 21

**Continuing** our scenario from Chapter 1 whereby you inherit \$1 million dollars from a relative, with the stipulation that you must invest it under the general supervision of a trustee, let's consider our investing opportunities. You know generally about stocks and bonds, but you are not really sure about the specific details of each. For example, you do not know what a BBB rating on a bond indicates. Furthermore, you are unaware of zero coupon bonds, you have never heard the term securitization, and when your broker suggests you consider ADRs for international exposure you are really at a loss. For sure, you are not ready to explain to your trustee why you might consider derivative securities for your portfolio. It is clear that an investor in today's world should be prepared to deal with these issues because they, and similar issues, will come up as soon as you undertake any type of investing program.

Fortunately, you can learn to evaluate your investing opportunities, both current and prospective, by learning some basics about the fundamental types of securities as outlined in this chapter.

# Organizing Financial Assets

The emphasis in this chapter (and in the text in general) is on *financial assets*, which, as explained in Chapter 1, are financial claims on the issuers of the *securities*. These claims are marketable securities that are saleable in the various marketplaces discussed in Chapter 4. Basically, households have three choices with regard to savings options:

- Hold the liabilities of traditional intermediaries, such as banks, thrifts, and insurance companies. This means holding savings accounts and other financial assets well known to many individual investors.
- Hold securities directly, such as stocks and bonds, purchased directly through brokers and other intermediaries. This option can also include self-directed retirement plans involving IRAs, 401(k)s, Keoghs, and so forth.
- **3.** Hold securities indirectly, through mutual funds and pension funds. In this case, households leave the investing decisions to others by investing indirectly rather than directly.

A pronounced shift has occurred in these alternatives over time. Households have decreased the percentage of direct holdings of securities and the liabilities of traditional intermediaries and increased their indirect holdings of assets through mutual funds and pension funds.

Investors have increasingly opted for indirect investing. **Indirect investing**, discussed in Chapter 3, is a very important alternative for all investors to consider, and has become tremendously popular in the last few years with individual investors. The assets of mutual funds, the most popular type of investment company, now total approximately \$10 trillion.

Households also own a large, and growing, amount of pension fund reserves, and they are actively involved in the allocation decisions of more than \$1 trillion of pension funds through 401(k) plans and other self-directed retirement plans. Most of this amount is being invested by pension funds, on behalf of households, in equity and fixed-income securities, the primary securities of interest to most individual investors. Pension funds (both public and private) are the largest single institutional owner of common stocks.

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**Indirect Investing** The buying and selling of the shares of investment companies which, in turn, hold portfolios of securities

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# **INVESTMENT ALTERNATIVES**

# DIRECT INVESTING

This chapter concentrates on investment alternatives available through **direct investing**, which involves securities that investors not only buy and sell themselves but also have direct control over. Investors who invest directly in financial markets, either using a broker or by other means, have a wide variety of assets from which to choose.

Nonmarketable investment opportunities, such as savings accounts at thrift institutions, are discussed briefly since investors often own, or have owned, these assets and are familiar with them. However, in this text we concentrate on marketable securities. Such securities may be classified into one of three categories: the money market, the capital market, and the derivatives market.

Investors should understand money market securities, particularly Treasury bills, but they typically will not own these securities directly, choosing instead to own them through the money market funds explained in Chapter 3. Within the capital market, securities can be classified as either fixed-income or equity securities. Finally, investors may choose to use derivative securities in their portfolios. The market value of these securities is derived from an underlying security such as common stock.

Exhibit 2-1 organizes the types of financial assets to be analyzed in this chapter and in Chapter 3 using the above classifications. Although for expositional purposes we cover direct investing and indirect investing in separate chapters, it is important to understand that investors can do both, and often do, investing directly through the use of a brokerage

E	CHIBIT 2-I
Major typ	es of financial assets
Nonmarketable Money market	<ul> <li>DIRECT INVESTING</li> <li>Savings deposits</li> <li>Certificates of deposit</li> <li>Money market deposit accounts</li> <li>U.S. savings bonds</li> <li>Treasury bills</li> <li>Negotiable certificates of deposit</li> <li>Commercial paper</li> <li>Eurodollars</li> </ul>
Capital market	<ul> <li>Repurchase agreements</li> <li>Banker's acceptances</li> <li>Fixed income Treasuries Agencies Municipals</li> </ul>
Derivatives market	Corporates • Equities Preferred stock Common stock • Options • Future contracts
Investment companies	<ul> <li>INDIRECT INVESTING</li> <li>Unit investment trust</li> <li>Open end Money market mutual fund Stock, bond, and income funds</li> <li>Closed end</li> <li>Exchange-traded funds</li> </ul>

Direct Investing

Investors buy and sell securities themselves, typically through brokerage accounts

# Nonmarketable Financial Assets 23

account and investing indirectly in one or more types of investment company. Furthermore, brokerage accounts can accommodate the ownership of investment company shares, thereby combining direct and indirect investing into one account.

 Today's investors often combine both direct and indirect investing in their portfolios. Brokerage accounts can accommodate both.

# A GLOBAL PERSPECTIVE

As noted in Chapter 1, investors should adopt a global perspective in making their investment decisions. The investment alternatives analyzed in this chapter, in particular some money market assets, bonds, and stocks, are available from many foreign markets to U.S. investors. Thus, the characteristics of these basic securities are relevant whether investors own domestic or foreign stocks, or both. Furthermore, securities traditionally thought of as U.S. securities are, in reality, heavily influenced by global events and investors should understand that.

# Example 2-1

Coca-Cola is justifiably famous for its brandname and its global marketing efforts. Its success, however, is heavily dependent on what happens in the foreign markets it has increasingly penetrated. If foreign economies slow down, Coke's sales may be hurt. Furthermore, Coke must be able to convert its foreign earnings into dollars at favorable rates and repatriate them. Therefore, investing in Coke involves betting on a variety of foreign events.

U.S. investors can choose to purchase foreign stocks quite easily today. Alternatively, many U.S. investors invest internationally by turning funds over to a professional investment organization, the investment company, which makes all decisions on behalf of investors who own shares of the company.<sup>1</sup> Regardless, investors today must understand we live in a global environment that will profoundly change the way we live and invest.

According to a CFA Institute discussion, assets available to be invested in worldwide are expected to more than double by 2015, with a majority of that growth coming from nontraditional places.<sup>2</sup>

# Nonmarketable Financial Assets

We begin our discussion of investment alternatives with those that are nonmarketable simply because most individuals will own one or more of these assets regardless of what else they do in the investing arena. For example, approximately 15 percent of total financial assets of U.S. households is in the form of deposits, including checkable deposits and currency, and time and savings deposits. Furthermore, these assets serve as a good contrast to the market-able securities we will concentrate on throughout the text.

A distinguishing characteristic of these assets is that they represent personal transactions between the owner and the issuer. That is, you as the owner of a savings account at a credit union must open the account personally, and you must deal with the credit union in maintaining the account or in closing it. In contrast, marketable securities trade in impersonal markets—the buyer (seller) does not know who the seller (buyer) is, and does not care.

These are "safe" investments, occurring at (typically) insured financial institutions or issued by the U.S. government. At least some of these assets offer the ultimate in **liquidity**, which can be defined as the ease with which an asset can be converted to cash. Thus, we know we can get all of our money back from a savings account, or a money market deposit account, very quickly.

Liquidity The ease with which an asset can be bought or sold quickly with relatively small price changes

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<sup>&</sup>lt;sup>1</sup>We will discuss the first alternative in this chapter and the second in Chapter 3. <sup>2</sup>Susan Trammell, "Vision 2012," *CFA Institute Magazine*, July/August 2008, p. 36.

# INVESTMENT ALTERNATIVES

# EXHIBIT 2-2

# Important Nonmarketable Financial Assets

- 1. Savings accounts. Undoubtedly the best-known type of investment in the United States, savings accounts are held at commercial banks or at "thrift" institutions such as savings and loan associations and credit unions. Savings accounts in insured institutions (and your money should not be in a noninsured institution) offer a high degree of safety on both the principal and the interest earned on that principal. Liquidity is taken for granted and, together with the safety feature, probably accounts substantially for the popularity of savings accounts. Most accounts permit unlimited access to funds although some restrictions can apply. Rates paid on these accounts are stated as an Annual Percentage Yield (APY).
- 2. Nonnegotiable certificates of deposit. Commercial banks and other institutions offer a variety of savings certificates known as certificates of deposit (CDs). These certificates are available for any amount and for various maturities, with higher rates offered as maturity increases. (Larger deposits may also command higher rates, holding maturity constant.) These CDs are meant to be a buy-and-hold investment. Although some CD issuers have now reduced the stated penalties for early withdrawal, and even waived them, penalties for early withdrawal of funds can be imposed.
- 3. Money market deposit accounts (MMDAs). Financial institutions offer money market deposit accounts (MMDAs)

with no interest rate ceilings. Money market "investment" accounts have a required minimum deposit to open, pay competitive money market rates, and are insured up to \$100,000 by the Federal Deposit Insurance Corporation (FDIC), if the bank is insured. Six pre-authorized or automatic transfers are allowed each month, up to three of which can be by check. As many withdrawals as desired can be made in person or through automated teller machines (ATMs), and there are no limitations on the number of deposits.

U.S government savings bonds. The nontraded debt of the U.S. government, savings bonds, are nonmarketable, nontransferable, and nonnegotiable, and cannot be used for collateral. They are purchased from the Treasury, most often through banks and savings institutions. Series EE bonds in paper form are sold at 50 percent of face value, with denominations of \$50, \$75, \$100, \$200, \$500, \$1,000, \$5,000, and \$10,000. Electronic EE bonds are sold at face value and now earn a fixed rate of return.

A second series of savings bonds is the I bond, sold in both electronic and paper form. A comparison of these two savings bonds is available at http://www.savingsbonds. gov/indiv/research/indepth/ebonds/res\_e\_bonds\_eecomparison.htm.

Exhibit 2-2 describes the four major nonmarketable assets held by investors. Innovations have occurred in this area. For example, the Treasury now offers *I bonds*, or inflation-indexed savings bonds. The yield on these bonds is a combination of a fixed rate of return and a semiannual inflation rate.<sup>3</sup>

# Money Market Securities

Money Markets The market for short-term, highly liquid, low-risk assets such as Treasury bills and negotiable CDs **Money markets** include short-term, highly liquid, relatively low risk debt instruments sold by governments, financial institutions, and corporations to investors with temporary excess funds to invest. This market is dominated by financial institutions, particularly banks, and governments. The size of the transactions in the money market typically is large (\$100,000 or more). The maturities of money market instruments range from one day to one year and are often less than 90 days.

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<sup>&</sup>lt;sup>3</sup>*I bonds* are purchased at face value. Earnings grow inflation-protected for maturities up to 30 years. Face values range from \$50 to \$10,000. Federal taxes on earnings are deferred until redemption.

# **EXHIBIT 2-3**

# **Important Money Market Securities**

- Treasury bills. The premier money market instrument, a fully guaranteed, very liquid IOU from the U.S. Treasury. They are sold on an auction basis every week at a discount from face value in denominations starting at \$10,000; therefore, the discount determines the yield. The greater the discount at time of purchase, the higher the return earned by investors. Typical maturities are 13 and 26 weeks, although maturities range from a few days to 52 weeks. New bills can be purchased by investors on a competitive or noncompetitive bid basis. Outstanding (i.e., already issued) bills can be purchased and sold in the secondary market, an extremely efficient market where government securities dealers stand ready to buy and sell these securities.
- 2. Negotiable certificates of deposit (CDs). Issued in exchange for a deposit of funds by most American banks, the CD is a marketable deposit liability of the issuer, who usually stands ready to sell new CDs on demand. The deposit is maintained in the bank until maturity, at which time the holder receives the deposit plus interest. However, these CDs are negotiable, meaning that they can be sold in the open market before maturity. Dealers make a market in these unmatured CDs. Maturities typically range from 14 days (the minimum maturity permitted) to one year. The minimum deposit is \$100,000.
- Commercial paper. A short-term, unsecured promissory note issued by large, well-known, and financially strong corporations (including finance companies). Denominations

start at \$100,000, with a maturity of 270 days or less (average maturity is about 30 days). Commercial paper is usually sold at a discount either directly by the issuer or indirectly through a dealer, with rates comparable to CDs. Although a secondary market exists for commercial paper, it is weak and most of it is held to maturity. Commercial paper is rated by a rating service as to quality (relative probability of default by the issuer).

- 4. Repurchase agreement (RPs). An agreement between a borrower and a lender (typically institutions) to sell and repurchase U.S. government securities. The borrower initiates an RP by contracting to sell securities to a lender and agreeing to repurchase these securities at a prespecified price on a stated date. The effective interest rate is given by the difference between the two prices. The maturity of RPs is generally very short, from three to 14 days, and sometimes overnight. The minimum denomination is typically \$100,000.
- 5. Banker's acceptance. A time draft drawn on a bank by a customer, whereby the bank agrees to pay a particular amount at a specified future date. Banker's acceptances are negotiable instruments because the holder can sell them for less than face value (i.e., discount them) in the money market. They are normally used in international trade. Banker's acceptances are traded on a discount basis, with a minimum denomination of \$100,000. Maturities typically range from 30 to 180 days, with 90 days being the most common.

Some of these instruments are negotiable and actively traded, and some are not. Investors may choose to invest directly in some of these securities, but more often they do so indirectly through money market mutual funds (discussed in Chapter 3), which are investment companies organized to own and manage a portfolio of securities and which in turn are owned by investors. Thus, many individual investors own shares in money market funds that, in turn, own one or more of these money market certificates.

Exhibit 2-3 describes the major money market securities of most interest to individual investors. (Other money market securities exist, such as federal funds, but most individual investors will never encounter them.)

# THE TREASURY BILL

# **Treasury Bill** A short-term money market instrument sold at discount

by the U.S. government

The **Treasury bill** (T-bill) is the most prominent money market security because it serves as a benchmark asset. Although in some pure sense there is no such thing as a risk-free financial asset, on a practical basis the Treasury bill is risk free on a nominal basis (not accounting for inflation). There is little if any practical risk of default by the U.S. government.

✓ The Treasury bill rate, denoted RF, is used throughout the text as a proxy for the nominal (today's dollars) *risk-free rate of return* available to investors (e.g., the RF that was shown in Figure 1-1).

Treasury bills are auctioned weekly at a discount from face value, which is a minimum \$10,000.<sup>4</sup> T-bills are redeemed at face value, thereby providing investors with an effective rate of return that can be calculated at time of purchase. Obviously, the less investors pay for these securities, the larger their return.

**Calculating the Discount Yield** Convention in the United States for many years is to state the yield on Treasury bills with six-month maturities or less on a discount yield basis, using a 360-day year. The discount yield is calculated as follows:

Discount yield = 
$$\left[\frac{(Face Value - Pur. Price)}{Face Value}\right] \times \left[\frac{360}{maturity of the bill in days}\right]$$

The discount yield understates the investor's actual yield because it uses a 360-day year and divides by the face value instead of the purchase price. The investment yield method (also called the bond equivalent yield and the coupon equivalent rate) can be used to correct for these deficiencies, and for any given Treasury bill the investment yield will be greater than the discount yield. It is calculated as follows:<sup>5</sup>

Investment yield = 
$$\left[\frac{(Face Value - Pur. Price)}{Pur. Price}\right] \times \left[\frac{365}{maturity of the bill in days}\right]$$

Treasury bill rates are determined at auction each week, and therefore reflect current money market conditions. If T-bill rates are rising (falling), this generally reflects an increased (decreased) demand for funds. In turn, other interest rates will be affected.

# **MONEY MARKET RATES**

Money market rates tend to move together, and most rates are very close to each other for the same maturity. Treasury bill rates are less than the rates available on other money market securities because of their risk-free nature.

# Checking Your Understanding

- 1. Why are money market securities referred to as impersonal assets, while the nonmarketable financial assets are not?
- **2.** Holding maturity constant, would you expect the yields on money market securities to be within a few tenths of a percent of each other?
- 3. Why does the Treasury bill serve as a benchmark security?

<sup>&</sup>lt;sup>4</sup>Individuals can purchase bills directly from the Treasury using so-called TreasuryDirect accounts. They can also purchase them through banks and brokers on either a competitive or noncompetitive basis.

<sup>&</sup>lt;sup>5</sup>Note in this equation a leap year would involve 366 days; in both equations, a 3-month T-bill uses 91 days and a 6-month T-bill uses 182 days.

# **Capital Market Securities**

**Capital Market** The market for long-term securities such as bonds and stocks

**Capital markets** encompass fixed-income and equity securities with maturities greater than one year. Risk is generally much higher than in the money market because of the time to maturity and the very nature of the securities sold in the capital markets. Marketability is poorer in some cases.

The capital market includes both debt and equity securities, with equity securities having no maturity date.

# **Fixed-income Securities**

Fixed-Income Securities Securities with specified payment dates and amounts, primarily bonds

Bonds Long-term debt

instruments representing the issuer's contractual

obligation

We begin our review of the principal types of capital market securities typically owned directly by individual investors with **fixed-income securities**. All of these securities have a specified payment schedule. In most cases, such as with a traditional bond, the amount and date of each payment are known in advance. Some of these securities deviate from the traditional-bond format, but all fixed-income securities have a specified payment or repayment schedule—they must mature at some future date.

Technically, fixed-income securities include: Treasury bonds, Agency bonds, municipal bonds, corporate bonds, asset-backed securities, mortgage-related bonds, and money market securities.<sup>6</sup> We covered money market securities in the previous section.

# BONDS

**Bonds** can be described simply as long-term debt instruments representing the issuer's contractual obligation, or IOU. The buyer of a newly issued coupon bond is lending money to the issuer who, in turn, agrees to pay interest on this loan and repay the principal at a stated maturity date.

Bonds are *fixed-income securities* because the interest payments (for coupon bonds) and the principal repayment for a typical bond are specified at the time the bond is issued and fixed for the life of the bond. At the time of purchase, the bond buyer knows the future stream of *cash flows* to be received from buying and holding the bond to maturity. Barring default by the issuer, these payments will be received at specified intervals until maturity, at which time the principal will be repaid. However, if the buyer decides to sell the bond before maturity, the price received will depend on the level of interest rates at that time.

A bond has clearly defined legal ramifications. Failure to pay either interest or principal on a bond constitutes default for that obligation. Default, unless quickly remedied by payment or a voluntary agreement with the creditor, leads to bankruptcy.<sup>7</sup>

Note that from an investor's viewpoint a bond is a "safe" asset. Principal and interest are specified and the issuer must meet these obligations or face default, and possibly bankruptcy.

# Par Value (Face Value)

The redemption value of a bond paid at maturity, typically \$1,000

**Bond Characteristics** The **par value** (face value) of most bonds is \$1,000, and we will use this number as the amount to be repaid at maturity.<sup>8</sup> The typical bond matures (terminates)

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<sup>&</sup>lt;sup>6</sup>This is the definition used by the Bond Market Association.

<sup>&</sup>lt;sup>7</sup>A filing of bankruptcy by a corporation initiates litigation and involvement by a court, which works with all parties concerned.

<sup>&</sup>lt;sup>8</sup>The par value is almost never less than \$1,000, although it easily can be more.

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### **28 CHAPTER 2** INVESTMENT ALTERNATIVES

on a specified date and is technically known as a *term bond*.<sup>9</sup> Most bonds are coupon bonds, where *coupon* refers to the periodic interest that the issuer pays to the holder of the bonds.<sup>10</sup> Interest on bonds is typically paid semiannually.

Example 2-2

A 10-year, 10 percent coupon bond has a dollar coupon of \$100 (10 percent of \$1,000); therefore, knowing the percentage coupon rate is the same as knowing the coupon payment in dollars.<sup>11</sup> This bond would pay interest (the coupons) of \$50 on a specified date every six months. The \$1,000 principal would be repaid 10 years hence on a date specified at the time the bond is issued. Similarly, a 5.5 percent coupon bond pays an annual interest amount of \$55, payable at \$27.50 every 6 months. Note that all the characteristics of a bond are specified exactly when the bond is issued.

**Bond Prices** By convention, corporations and Treasuries use 100 as par rather than \$1,000. Therefore, a price of 90 represents \$900 (90 percent of the \$1,000 par value), and a price of 55 represents \$550 using the normal assumption of a par value of \$1,000. Each "point," or a change of "1," represents 1 percent of \$1,000, or \$10. The easiest way to convert quoted bond prices to actual prices is to remember that they are quoted in percentages, with the common assumption of a \$1,000 par value.

# Example 2-3

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A closing price of 101.375 on a particular day for an IBM bond represents 101.375 percent of 1,000, or  $1.01375 \times 1000 = 1013.75$ . Treasury bond prices are quoted in 32nds and may be shown as fractions, as in 100 14/32.

✓ Bond prices are quoted as a percentage of par value, which is typically \$1,000.

**Accrued Interest** Example 2-3 suggests that an investor could purchase the IBM bond for \$1,013.75 on that day. Actually, bonds trade on an *accrued interest* basis. That is, the bond buyer must pay the bond seller the price of the bond as well as the interest that has been earned (accrued) on the bond since the last semiannual interest payment. This allows an investor to sell a bond any time between interest payments without losing the interest that has accrued. Bond buyers should remember this additional "cost" when buying a bond because prices are quoted in the paper without the accrued interest.<sup>12</sup>

**Discounts and Premiums** The price of the IBM bond in Example 2-3 is above 100 (i.e., \$1,000) because market yields on bonds of this type declined after this bond was issued.

The coupon on the IBM bond became more than competitive with the going market interest rate for comparable newly issued bonds, and the price increased to reflect this fact. At any point in time some bonds are selling at *premiums* (prices above par value), reflecting a decline in market rates after that particular bond was sold. Others are selling at *discounts* 

<sup>&</sup>lt;sup>9</sup>The phrase *term-to-maturity* denotes how much longer the bond will be in existence. In contrast, a serial bond has a series of maturity dates. One issue of *serial bonds* may mature in specified amounts year after year, and each specified amount could carry a different coupon.

<sup>&</sup>lt;sup>10</sup>The terms *interest income* and *coupon income* are interchangeable.

<sup>&</sup>lt;sup>11</sup>The coupon rate on a traditional, standard bond is fixed at the bond's issuance and cannot vary.

<sup>&</sup>lt;sup>12</sup>The *invoice price*, or the price the bond buyer must pay, will include the accrued interest.

### Fixed-income Securities 29

(prices below par value of \$1,000), because the stated coupons are less than the prevailing interest rate on a comparable new issue.

✓ While a bond will be worth exactly its face value (typically \$1,000) on the day it matures, its price will fluctuate around \$1,000 until then, depending on what interest rates do. Interest rates and bond prices move inversely.

**Call Provision** Gives the issuer the right to call in a security and retire it by paying off the obligation

**Callable Bonds** The **call provision** gives the issuer the right to "call in" the bonds, thereby depriving investors of that particular fixed-income security.<sup>13</sup> Exercising the call provision becomes attractive to the issuer when market interest rates drop sufficiently below the coupon rate on the outstanding bonds for the issuer to save money.<sup>14</sup> Costs are incurred to call the bonds, such as a "call premium" and administrative expenses.<sup>15</sup> However, issuers expect to sell new bonds at a lower interest cost, thereby replacing existing higher interest-cost bonds.

# Investments Intuition

The call feature is a disadvantage to investors who must give up the higher yielding bonds. The wise bond investor will note the bond issue's provisions concerning the call, carefully determining the earliest date at which the bond can be called and the bond's yield if it is called at the earliest date possible. (This calculation is shown in Chapter 17.) Some investors have purchased bonds at prices above face value and suffered a loss when the bonds were unexpectedly called in and paid off at face value.<sup>16</sup> An example of a surprise call occurred in early 2005 when New York City initiated a redemption of \$430 million of their bonds, saddling some bondholders with losses of 15 percent or more. Many of these investors had paid more than face value for these bonds the year before in the secondary market, attracted by their high yields. Virtually no one expected a call because the city was prohibited from refinancing the bonds with new tax-exempts. The city, however, issued taxable bonds and called these in.

Some bonds are not callable. Most Treasury bonds cannot be called, although some older Treasury bonds can be called within five years of the maturity date. About three-fourths of municipal bonds being issued today are callable.

**Zero Coupon Bond** A bond sold with no coupons at a discount and redeemed for face value at maturity **The Zero Coupon Bond** A radical innovation in the format of traditional bonds is the **zero coupon bond**, which is issued with no coupons, or interest, to be paid during the life of the bond. The purchaser pays less than par value for zero coupons and receives par

<sup>&</sup>lt;sup>13</sup>Unlike the call provision, the *sinking fund* provides for the orderly retirement of the bond issue during its life. The provisions of a sinking fund vary widely. For example, it can be stated as a fixed or variable amount and as a percentage of the particular issue outstanding or the total debt of the issuer outstanding. Any part or all of the bond issue may be retired through the sinking fund by the maturity date. One procedure for carrying out the sinking fund requirement is simply to buy the required amount of bonds on the open market each year. A second alternative is to call the bonds randomly. Again, investors should be aware of such provisions for their protection.

<sup>&</sup>lt;sup>14</sup>There are different types of call features. Some bonds can be called any time during their life, given a short notice of 30 or 60 days. Many callable bonds have a "deferred call" feature, meaning that a certain time period after issuance must expire before the bonds can be called. Popular time periods in this regard are 5 and 10 years.

<sup>&</sup>lt;sup>15</sup>The call premium often equals one year's interest if the bond is called within a year; after the first year, it usually declines at a constant rate.

<sup>&</sup>lt;sup>16</sup>A bond listed as "nonrefundable" for a specified period can still be called in and paid off with cash in hand. It cannot be refunded through the sale of a new issue carrying a lower coupon.

value at maturity. The difference in these two amounts generates an effective interest rate, or rate of return. As in the case of Treasury bills, which are sold at discount, the lower the price paid for the coupon bond, the higher the effective return.

Issuers of zero coupon bonds include corporations, municipalities, government agencies, and the U.S. Treasury. Since 1985 the Treasury has offered STRIPS, or Separate Trading of Registered Interest and Principal of Securities.<sup>17</sup>

# **TYPES OF BONDS**

There are four major types of bonds in the United States based on the issuer involved (U.S. government, federal agency, municipal, and corporate bonds), and variations exist within each major type.

**Treasury Securities** The U.S. government, in the course of financing its operations through the Treasury Department, issues numerous notes and bonds with maturities greater than one year. The U.S. government is considered the safest credit risk because of its power to print money. The total amount of federal debt held by the public as of mid-March 2009 was \$6.7 trillion.

✓ For practical purposes, investors do not consider the possibility of risk of default for U.S. Treasury securities.<sup>18</sup>

An investor purchases these securities with the expectation of earning a steady stream of interest payments and with full assurance of receiving the par value of the bonds when they mature.

**Treasury bonds** traditionally have had maturities of 10 to 30 years, although a bond can be issued with any maturity.<sup>19</sup> The Treasury also sells Treasury notes, issued for a term of 2, 5, or 10 years.<sup>20</sup> Interest is paid every six months. Notes can be held to maturity or sold.<sup>21</sup>

**TIPS** Since 1997 the Treasury has sold **Treasury Inflation-Indexed Securities (TIPS)** which protects investors against losses resulting from inflation. TIPS pay a fixed rate of interest, but this rate is applied to the inflation-adjusted principal.<sup>22</sup> Therefore, if inflation occurs during the life of a bond, which is to be expected under normal conditions, every interest payment will be greater than the one before it.<sup>23</sup>

TIPS are sold at auction by the Treasury, with the interest rate determined at the auction. Therefore, at the time you buy a new TIPS you do not know what the interest rate will be.<sup>24</sup>

**Treasury Bond** Longterm bonds sold by the U.S. government

Treasury Inflation-Indexed Securities (TIPS) Treasury securities fully indexed for inflation

<sup>&</sup>lt;sup>17</sup>Under this program, all new Treasury bonds and notes with maturities greater than 10 years are eligible to be "stripped" to create zero coupon Treasury securities that are direct obligations of the Treasury.

<sup>&</sup>lt;sup>18</sup>Treasury bonds have been rated since 1917, and have always been triple-A rated.

<sup>&</sup>lt;sup>19</sup>U.S. securities with maturities greater than 1 year and less than 10 years technically are referred to as Treasury notes. See www.publicdebt.treas.gov for information about Treasury bonds, including inflation-indexed bonds. For a nominal fee and some simple paperwork, investors can join in TreasuryDirect. This program allows investors to buy Treasury securities directly by Internet or over the phone. Participants put in a "noncompetitive" bid which means they receive the average successful bid of the professionals. Payments are deducted from, or credited to, each participant's banking account.

<sup>&</sup>lt;sup>20</sup>These notes exist in electronic form only, not in paper form.

 $<sup>^{21}</sup>$ To buy a note, investors place a bid at auction (either competitive or noncompetitive), where the interest rate is determined. Bids may be placed in multiples of \$1,000.

<sup>&</sup>lt;sup>22</sup>Based on the CPI, the value of the bond is adjusted upwards every six months by the amount of inflation.

 $<sup>^{23}</sup>$ Each six-month interest payment is determined by multiplying the principal, which has been adjusted for inflation, by one-half the fixed annual interest rate.

 $<sup>^{24}</sup>$ The minimum purchase amount is \$1,000, and bids must be placed in multiples of \$1,000. TIPS are being sold with terms of 5, 10, and 20 years.

### Fixed-income Securities 31

They can be held to maturity or sold. Taxes must be paid each year on both the interest and the inflation adjustments, although the actual cash for the latter is not received until maturity. This is often referred to as a phantom tax—the investor owes tax each year on the increased value of the principal but does not receive this money until the bond is sold or matures. Therefore, many investors may prefer to hold these securities in a tax-deferred retirement account.

# Some Practical Advice

An investor can buy Treasury securities through a financial institution, bank, or broker. Alternatively, investors can open a TreasuryDirect account with the Treasury. This account allows investors to buy, reinvest, and sell Bills, Notes, Bonds, Treasury Inflation-Protected Securities (TIPS), and savings bonds 24 hours a day, 7 days a week. All account information is readily available online.

**Federal Agency Securities** Since the 1920s, the federal government has created various federal agencies designed to help certain sectors of the economy, through either direct loans or guarantee of private loans. These credit agencies compete for funds in the marketplace by selling **government agency securities**.

Two types of government agencies have existed in the U.S. financial system: federal agencies and government sponsored enterprises (GSEs).

- **1.** Federal agencies are part of the federal government, and their securities are fully guaranteed by the Treasury. The most important "agency" for investors is the Government National Mortgage Association (often referred to as "Ginnie Mae").
- **2.** Government Sponsored Enterprises (GSEs) are publicly held, for-profit corporations created by Congress to help lower and middle income people buy houses. They sell their own securities in the marketplace in order to raise funds for their specific purposes. Although these agencies have access to credit lines from the government, their securities are not explicitly guaranteed by the government as to principal or interest. GSEs include the Federal Home Loan Bank and the Farm Credit System.<sup>25</sup>

The Federal National Mortgage Association ("Fannie Mae") and the Federal Home Loan Mortgage Corporation ("Freddie Mac") started as federal agencies and later offered stock to the public, becoming GSEs.<sup>26</sup> They buy mortgages from financial institutions, freeing them to make more mortgage loans to Americans. Because of their Congressional charters, the financial markets always believed that the government would not allow these GSEs to default. In September 2008 a Federal takeover of Fannie Mae and Freddie Mac occurred.

**Mortgage-backed Securities** A part of the market of fixed-income securities is known as asset-backed securities, which includes **mortgage-backed securities.** These securities are simply shares of home loans (mortgage) sold to investors in various security forms. Traditionally investors in mortgage-backed securities expected to minimize default risk because most mortgages were guaranteed by one of the government agencies. Nevertheless, these securities present investors with uncertainty because they can receive varying amounts of monthly payments depending on how quickly homers pay off their mortgages.

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Government Agency Securities Securities issued by federal credit agencies (fully guaranteed) or by government sponsored agencies (not guaranteed)

Mortgage-Backed Securities Securities whose value depends on some set of mortgages

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<sup>&</sup>lt;sup>25</sup>Some GSEs transition from being a government sponsored enterprise to a completely private company. Sallie Mae, the country's leading provider of student loans, began privatizing its operations in 1997, and by the end of 2004 it ended all ties to the federal government.

<sup>&</sup>lt;sup>26</sup>These two GSEs have always been widely referred to in the press and any discussions as "Fannie Mae," or Fannie, and "Freddie Mac," or Freddie.

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### **32 CHAPTER 2** INVESTMENT ALTERNATIVES

By now, almost everyone knows of the horrific difficulties associated with subprime mortgages and mortgage-backed securities. In mid-2007 a pair of hedge funds managed by Bear Stearns collapsed because of heavy losses in subprime mortgages. By 2008 a large amount of home loans had been packaged and sold to investors, and repackaged and sold again, and so on. As good borrowers dwindled in number, the loan originators made more and more loans to less creditworthy borrowers. Sometime in 2008 the rate of house foreclosures started to increase sharply as many borrowers could no longer keep up on their mortgages. With MBSs widely held throughout the economy, the foreclosures and declining house prices led to larger and larger losses for many investment banks and other financial institutions.

**Municipal Securities** Bonds sold by states, counties, cities, and other political entities (e.g., airport authorities, school districts) other than the federal government and its agencies are called **municipal bonds**. This is a vast market, roughly \$2.5 trillion in size, with tens of thousands of different issuers and more than 1 million different issues outstanding. Roughly one-third of municipal bonds outstanding are owned by households, and roughly one-third by mutual funds.

Credit ratings range from very good to very suspect. Thus, risk varies widely, as does marketability. Overall, however, the default rate on municipal bonds has been very favorable compared to corporate bonds. Investment grade municipals are only 1/30 as likely to default as investment grade corporates. For AAA-rate municipals, defaults have been virtually nonexistent.

Two basic types of municipals are *general obligation bonds*, which are backed by the "full faith and credit" of the issuer, and *revenue bonds*, which are repaid from the revenues generated by the project they were sold to finance (e.g., a toll road or airport improvement).<sup>27</sup> In the case of general obligation bonds, the issuer can tax residents to pay for the bond interest and principal. In the case of revenue bonds, the project must generate enough revenue to service the issue.

# Some Practical Advice

A new free online municipal bond information service is now available, nicknamed EMMA, at emma. msrb.org. It shows real-time trade data as well as the issuer's prospectus, which contains the official information about the issue. To use this service effectively, you will generally need the Cusip number, which is a unique identification code for each issue.

Most long-term municipals are sold as *serial bonds*, which means that a specified number of the original issue matures each year until the final maturity date. For example, a 10-year serial issue might have 10 percent of the issue maturing each year for the next 10 years.

A majority of municipals sold are insured by one of the major municipal bond insurers. By having the bonds insured, the issuers achieve a higher rating for the bond, and therefore a lower interest cost. Investors trade some yield for protection. However, the financial viability of the bond insurers themselves came under strong scrutiny in 2008 as the subprime crisis deepened.

### Municipal

**Bonds** Securities issued by political entities other than the federal government and its agencies, such as states and cities

<sup>&</sup>lt;sup>27</sup>Municipalities also issue short-term obligations. Some of these qualify for money market investments because they are short term and of high quality.

### Fixed-income Securities 33

**The Taxable Equivalent Yield (TEY)** The distinguishing feature of most municipals is their exemption from federal taxes. Because of this feature, the stated interest rate on these bonds will be lower than that on comparable nonexempt bonds because, in effect, it is an after-tax rate. The higher an investor's tax bracket, the more attractive municipals become.

✓ The *taxable equivalent yield* (*TEY*) shows the before-tax interest rate on a municipal bond that is equivalent to the stated (after-tax) interest rate on that bond, given any marginal tax rate.

The TEY for any municipal bond return and any marginal tax bracket can be calculated using the following formula:

Taxable equivalent yield =  $\frac{\text{Tax} - \text{exempt municipal yield}}{1 - \text{Marginal tax rate}}$  (2-1)

An investor in the 28 percent marginal tax bracket who invests in a 5 percent municipal bond would have to receive

$$\frac{0.05}{(1-0.28)} = 6.94\%$$

from a comparable taxable bond to be as well off.

In some cases, the municipal bondholder can also avoid state and/or local taxes. For example, a North Carolina resident purchasing a bond issued by the state of North Carolina would escape all taxes on the interest received.<sup>28</sup> In 2008 the Supreme Court reaffirmed that states can exempt interest on their own bonds for residents while taxing interest on bonds issued by other states.

✓ Bond yields are typically stated on a before-tax basis except in the case of municipal bonds, which are stated on an after-tax basis. The TEY puts the municipal bond yield on a before-tax basis, allowing investors to compare bond yields across the board.

**Corporates** Most of the larger corporations, several thousand in total, issue **corporate bonds** to help finance their operations. Many of these firms have more than one issue outstanding.

Although an investor can find a wide range of maturities, coupons, and special features available from corporates, the typical corporate bond matures in 20 to 40 years, pays semiannual interest, is callable, carries a sinking fund, and is sold originally at a price close to par value, which is almost always \$1,000. Credit quality varies widely.

Corporate bonds are **senior securities**. That is, they are senior to any preferred stock and to the common stock of a corporation in terms of priority of payment and in case of

effective state rate = marginal state tax rate X (1 - Federal marginal rate)

Corporate Bonds

Long-term debt securities of various types sold by corporations

Example 2-4

### Senior Securities

Securities, typically debt securities, placed ahead of common stock in terms of payment or in case of liquidation

<sup>&</sup>lt;sup>28</sup>To calculate the TEY in these cases, first determine the effective state rate:

Then, calculate the combined effective federal/state tax rate as:

combined tax rate = effective state rate + federal rate

Use Equation 2-1 to calculate the combined TEY, substituting the combined effective tax rate for the federal marginal tax rate shown in Equation 2-1.

bankruptcy and liquidation. However, within the bond category itself there are various degrees of security.

✓ The most common type of unsecured bond is the **debenture**, a bond backed only by the issuer's overall financial soundness.<sup>29</sup>

Debentures can be subordinated, resulting in a claim on income that stands below (subordinate to) the claim of the other debentures.

**New Types of Corporate Bonds** In an attempt to make bonds more accessible to individuals, high credit-quality firms have begun selling **direct access notes (DANs)**. These notes eliminate some of the traditional details associated with bonds by being issued at par (\$1,000), which means no discounts, premiums, or accrued interest. Coupon rates are fixed, and maturities range from nine months to 30 years. The company issuing the bonds typically "posts" the maturities and rates it is offering for one week, allowing investors to shop around.

One potential disadvantage of DANs is that they are best suited for the buy-and-hold investor. A seller has no assurance of a good secondary market for the bonds, and therefore no assurance as to the price that would be received.

Responding to the success of TIPS, explained earlier, some companies have begun offering corporate inflation-protected notes. These bonds feature monthly payments that immediately reflect the effects of inflation. These payments consist of a fixed base rate plus the year-to-year change in the CPI.<sup>30</sup> Unlike Treasury bonds, corporate bonds are subject to credit risk because a corporation can go bankrupt.

**Convertible Bonds** Some bonds have a built-in conversion feature. The holders of these bonds have the option to convert the bonds into common stock whenever they choose. Typically, the bonds are turned in to the corporation in exchange for a specified number of common shares, with no cash payment required. Convertible bonds are two securities simultaneously: a fixed-income security paying a specified interest payment and a claim on the common stock that will become increasingly valuable as the price of the underlying common stock rises. Thus, the prices of convertibles may fluctuate over a fairly wide range, depending on whether they currently are trading like other fixed-income securities or are trading to reflect the price of the underlying common stock.

# Investments Intuition

Investors should not expect to receive the conversion option free. The issuer sells convertible bonds at resulting in a lower interest return to investors.

Bond Ratings Letters assigned to bonds by rating agencies to express the relative probability of default

**Bond Ratings** Corporate and municipal bonds, unlike Treasury securities, carry the risk of default by the issuer. Rating agencies such as Standard & Poor's (S&P) Corporation and Moody's Investors Service Inc. provide investors with **bond ratings**, that is, current opinions

Direct Access Notes (DANs) Issued at par (\$1,000) with fixed coupon rates, and maturities ranging from nine months to 30 years. The company issuing the bonds typically "posts" the maturities and rates it is offering for one week, allowing

investors to shop around.

Debenture An unse-

cured bond backed by the general worthiness of

the firm

<sup>&</sup>lt;sup>29</sup>Bonds that are "secured" by a legal claim to specific assets of the issuer in case of liquidation are called *mortgage bonds*.

<sup>&</sup>lt;sup>30</sup>These bonds are being issued with maturities of 5, 7, and 10 years, and at maturity the \$1,000 principal is repaid to investors. Unlike TIPS, investors must pay state taxes on the corporate bonds.

### Fixed-income Securities 35

on the *relative* quality of most large corporate and municipal bonds, as well as commercial paper. By carefully analyzing the issues in great detail, the rating firms, in effect, perform the credit analysis for the investor.

Standard & Poor's bond ratings consist of letters ranging from AAA, AA, A, BBB, and so on, to D. (Moody's corresponding letters are Aaa, Aa, A, Baa, etc., to D.) Plus or minus signs can be used to provide more detailed standings within a given category.<sup>31</sup> Exhibit 2-4 shows Standard & Poor's rating definitions and provides a brief explanation of the considerations on which the ratings are based.

# **EXHIBIT 2-4**

	Standard & Poor's Debt-Rating Definitions
AAA	Extremely strong capacity to pay interest and repay principal
AA	Strong capacity to pay interest and repay principal
А	Strong capacity to pay interest and repay principal but more vulnerable to an adverse change in conditions than in the case of AA
BBB	Adequate capacity to pay interest and repay principal. Even more vulnerable to adverse change in conditions than A-rated bonds
	Debt rated BB and below is regarded as having predominantly speculative characteristics.
BB	Less near-term risk of default than lower rated issues. These bonds are exposed to large ongoing uncertainties or adverse changes in conditions.
В	A larger vulnerability to default than BB but with the current capacity to pay interest and repay principal
CCC	A currently identifiable vulnerability to default and dependent on favorable conditions to pay interest and repay principal
CC	Applied to debt subordinated to senior debt rated CCC
С	Same as CC
D	A debit that is in default
+ or –	May be used to show relative standings within a category

The first four categories, AAA through BBB, represent *investment grade* securities. AAA securities are judged to have very strong capacity to meet all obligations, whereas BBB securities are considered to have adequate capacity. Typically, institutional investors must confine themselves to bonds in these four categories. Other things being equal, bond ratings and bond coupon rates are inversely related.

Bonds rated BB, B, CCC, and CC are regarded as speculative securities in terms of the issuer's ability to meet its contractual obligations. These securities carry significant uncertainties, although they are not without positive factors. Bonds rated C are currently not paying interest, and bonds rated D are in default.

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<sup>&</sup>lt;sup>31</sup>Moody's uses numbers (i.e., 1, 2, and 3) to designate quality grades further. For example, bonds could be rated Aa1 or Aa2. Major rating categories for Moody's include: Aaa, Aa, A, Baa, Ba, B, Caa, Ca, and C.

Of the large number of corporate bonds outstanding, traditionally more than 80 percent have been rated A or better (based on the value of bonds outstanding). Utilities and finance companies have the fewest low-rated bonds, and transportation companies the most (because of problems with bankrupt railroads). Of course, the financial crisis has had a major impact on the corporate bond market during 2008 and 2009.

Despite their widespread acceptance and use, bond ratings have some limitations. The rating agencies may disagree on their evaluations. Furthermore, because most bonds are in the top four categories, it seems safe to argue that not all issues in a single category (such as A) can be equally risky. It is extremely important to remember that *bond ratings are a reflection of the relative probability of default*, which says little or nothing about the absolute probability of default. Finally, it is important to remember that, like most people and institutions in life, rating agencies aren't perfect. Sometimes, for various reasons, they really miss the boat.

# Example 2-5

In December 2001, Enron was rated investment grade on a Friday. On Sunday, it filed for bankruptcy. S&P continued to rate Tyco bonds as investment grade (BBB), although the market clearly priced Tyco bonds in the junk category. And by the time the rating services down-graded WorldCom to junk status, the market had reflected that fact for some time.

Junk Bonds Bonds that carry ratings of BB or lower, with correspondingly higher yields **Junk Bonds** The term **junk bonds** refers to high-risk, high-yield bonds that carry ratings of BB (S&P) or Ba (Moody's) or lower, with correspondingly higher yields. An alternative, and more reassuring, name used to describe this area of the bond market is the *high-yield debt market*. Default rates on junk bonds vary each year. The default rate in 2001 was almost 9 percent, the highest level since 1991. It was over 6 percent in 2000. In contrast, the global default rate in 2007 was approximately at its lowest level in 25 years, reflecting several years of easy credit conditions. The financial crisis starting in 2008 may dramatically impact default rates.

# AUCTION RATE SECURITIES

Auction rate securities (ARS) are typically debt securities whose interest rate are periodically reset (typically, every 7, 28, or 35 days) through what is called a dutch auction.<sup>32</sup> Current and prospective investors submit bids as to the next interest rate they will pay, and the auction agent determines the lowest bid that will clear the amount of securities outstanding. Given a minimum denomination of \$25,000, most holders are institutional investors and wealthy individuals.

These auctions generally worked well until investment bankers started including securities backed by risky mortgages. In 2007 and 2008 the auctions started to fail as investors refused to bid on the securities. Many investors apparently regarded ARS as cash equivalents, only to find out they were not.

# ASSET-BACKED SECURITIES

The money and capital markets are constantly adapting to meet new requirements and conditions. This has given rise to new types of securities that were not previously available.

<sup>&</sup>lt;sup>32</sup>ARS included both corporates and municipals, and preferred stock may also be sold this way.

### Fixed-income Securities 37

Asset-Backed Securities (ABS) Securities issued against some type of assetlinked debts bundled together, such as credit card receivables or mortgages

*Securitization* refers to the transformation of illiquid, risky individual loans into more liquid, less risky securities referred to as **asset-backed securities (ABS)**. An asset-backed security is a securitized interest in a pool of non-mortgage assets (conceptually, the structure of ABS is similar to the mortgage-backed securities discussed earlier). To create an ABS, a corporation creates a trust and sells it a group of assets. The trust, in turn, sells securities to investors. Legal safeguards are established to protect investors from possible bankruptcy of the corporation.

# Example 2-6

Citicorp, a large bank, has a large Visa operation. In the past, it regularly took the cash flows from the monthly payments that customers make on their Visa accounts, securitized them, and sold the resulting bonds to investors.

Marketable securities have been backed by car loans, credit-card receivables, railcar leases, small-business loans, photocopier leases, aircraft leases, and so forth. The assets that can be securitized seem to have been limited only by the imagination of the packagers, as evidenced by the fact that by 1996 new asset types included royalty streams from films, student loans, mutual fund fees, tax liens, monthly electric utility bills, and delinquent child support payments.

As a result of the trend to securitization, asset-backed securities proliferated prior to 2008 as financial institutions rushed to securitize various types of loans. ABS and MBS volume was down substantially in 2008 because of the onset of the financial crisis. By early 2009 the issuance of ABS and MBS securities was down 90 percent.

ABSs can be structured into "tranches," or different classes, which are priced according to the degree of risk. Different classes can have different credit ratings, and tranches may be structured with different average maturities. As for risks, securitization works best when packaged loans are homogeneous, so that income streams and risks are more predictable. This is not the case for some of the newer loans being considered for packaging, such as loans for boats and motorcycles; the smaller amount of information results in a larger risk from unanticipated factors.

# Concepts in Action

# **Do You Want a Tailor-Made Fixed Income Security?**

Structured products are the recent "in" thing in investing. Basically, a structured product combines a Treasury or corporate bond with a play (an option) on a stock or stock index. Investors earn income while sharing in some equity gains, if they occur, while insuring against market losses on equities.

The number and variety of structured products have increased rapidly. Hundreds are aimed at individual investors. These notes can serve a wide variety of investor objectives, such as protecting retirement money, insuring against stock market losses, allowing investors to pursue possible large returns, and so forth.

Let's consider one popular structured product, the Principal Protection Note. Part of your money is invested in a zero coupon bond, which locks in a return. The remainder is invested in options contracts on a stock market index. If the index rises strongly, the investor shares in part, but not all, of the gain. If the market declines over the life of the note, the option expires worthless, but the investor still has the return from the zero coupon bond.

Like any investing opportunity, there are risks involved. Generally, investors must hold these products to maturity because there is no market for them. Commissions can be expensive. And the notes are being backed by a bank, which could experience significant financial problems or failure. Certainly, the wild events involving financial institutions in 2008 should give investors pause as to the absolute safety of some of our financial institutions. (

### INVESTMENT ALTERNATIVES

# **RATES ON FIXED-INCOME SECURITIES**

Interest rates on fixed-income securities fluctuate widely over the years as inflationary expectations change as well as demand and supply conditions for long-term funds. As we would expect on the basis of the return-risk trade-off explained in Chapter 1, corporate bond rates exceed Treasury rates because of the possible risk of default, and lower-rated corporates yield more than do higher-rated bonds. The municipal bond rate as reported is below all other rates, but we must remember that this is an after-tax rate. To make it comparable, municipal bond yields should be adjusted to a taxable equivalent yield using Equation 2-1. When this is done, the rate will be much closer to the taxable rates. Investors can obtain daily information on the rates available on fixed-income securities in the "Credit Markets" section of *The Wall Street Journal*.

# Checking Your Understanding

- **4.** Consider a corporate bond rated AAA versus another corporate bond rated only BBB. Could you say with confidence that the first bond will not default while for the second bond there is some reasonable probability of default?
- **5.** Municipal bond yields are stated on an after-tax basis while corporate bond yields are stated on a before-tax basis. Agree or disagree, and state your reasoning.
- 6. Should risk-averse investors avoid junk bonds?

# EQUITY SECURITIES

Unlike fixed-income securities, equity securities represent an ownership interest in a corporation. These securities provide a residual claim—after payment of all obligations to fixedincome claims—on the income and assets of a corporation. There are two forms of equities: preferred stock and common stock. Investors are primarily interested in common stocks.

# **PREFERRED STOCK**

Although technically an equity security, **preferred stock** is known as a hybrid security because it resembles both equity and fixed-income instruments. As an equity security, preferred stock has an infinite life and pays dividends. Preferred stock resembles fixed-income securities in that the dividend is fixed in amount and known in advance, providing a stream of income very similar to that of a bond. The difference is that the stream continues forever, unless the issue is called or otherwise retired (most preferred is callable). The price fluctuations in preferreds often exceed those in bonds.

Preferred stockholders are paid after the bondholders but before the common stockholders in terms of priority of payment of income and in case the corporation is liquidated. However, preferred stock dividends are not legally binding but must be voted on each period by a corporation's board of directors. If the issuer fails to pay the dividend in any year, the unpaid dividend(s) will have to be paid in the future before common stock dividends can be paid if the issue is cumulative. (If noncumulative, dividends in arrears do not have to be paid.)<sup>33</sup>

Preferred Stock An equity security with an intermediate claim (between the bondholders and the stockholders) on a firm's assets and earnings

 $<sup>^{33}</sup>$ In the event of omitted dividends, preferred stock owners may be allowed to vote for the directors of the corporation.

**Types of Preferred Stocks** A large amount of the total preferred outstanding is variable-rate preferred; that is, the dividend rate is tied to current market interest rates. More than one-third of the preferred stock sold in recent years is convertible into common stock at the owner's option.<sup>34</sup> Hybrid securities combining features of preferred stock and corporate bonds are available from brokerage houses.<sup>35</sup> For individual investors, these securities are an alternative to corporate bonds and traditional preferred stocks.

Most of the new hybrids are traded on the NYSE, offer fixed monthly or quarterly dividends considerably higher than investment-grade corporate bond yields, are rated as to credit risk, and have maturities in the 30–49-year range. Hybrids are sensitive to interest rate changes and can be called, although a fixed dividend is paid for five years.<sup>36</sup>

# **COMMON STOCK**

**Common stock** represents the ownership interest of corporations, or the equity of the stockholders, and we can use the term *equity securities* interchangeably. If a firm's shares are held by only a few individuals, the firm is said to be "closely held." Most companies choose to "go public"; that is, they sell common stock to the general public. This action is taken primarily to enable the company to raise additional capital more easily. If a corporation meets certain requirements, it may, if it chooses to, be listed on an exchange.

As a purchaser of 100 shares of common stock, an investor owns 100/n percent of the corporation (where *n* is the number of shares of common stock outstanding). As the residual claimants of the corporation, stockholders are entitled to income remaining after the fixed-income claimants (including preferred stockholders) have been paid; also, in case of liquidation of the corporation, they are entitled to the remaining assets after all other claims (including preferred stock) are satisfied.

As owners, the holders of common stock are entitled to elect the directors of the corporation and vote on major issues.<sup>37</sup> Each owner is usually allowed to cast votes equal to the number of shares owned for each director being elected. Such votes occur at the annual meeting of the corporation, which each shareholder is allowed to attend.<sup>38</sup> Most stockholders vote by *proxy*, meaning that the stockholder authorizes someone else (typically management) to vote his or her shares. Sometimes proxy battles occur, whereby one or more groups unhappy with corporate policies seek to bring about changes.

Stockholders also have *limited liability*, meaning that they cannot lose more than their investment in the corporation. In the event of financial difficulties, creditors have recourse only to the assets of the corporation, leaving the stockholders protected. This is perhaps the greatest advantage of the corporation and the reason why it has been so successful.

**Common Stock** An equity security representing the ownership interest in a corporation

<sup>&</sup>lt;sup>34</sup>A recent innovation is mandatory convertible preferreds, which automatically convert to the common stock in a few years at a ratio specified at time of issuance. These mandatory convertibles pay above-market yields, for which investors give up roughly 20 percent of any upside potential.

<sup>&</sup>lt;sup>35</sup>These include MIPS and QUIPS (*monthly income preferred securities* and *quarterly income preferred securities*), issued by Goldman Sachs, and TOPrS, or *trust originated preferred security*, originated by Merrill Lynch.

<sup>&</sup>lt;sup>36</sup>Unlike a traditional preferred stock, hybrids can suspend dividend payments no longer than five years.

<sup>&</sup>lt;sup>37</sup>The *voting rights* of the stockholders give them legal control of the corporation. In theory, the board of directors controls the management of the corporation, but in many cases the effective result is the opposite. Stockholders can regain control if they are sufficiently dissatisfied.

<sup>&</sup>lt;sup>38</sup>Most shareholders do not attend, often allowing management to vote their proxy. Therefore, although technically more than 50 percent of the outstanding shares are needed for control of a firm, effective control can often be exercised with considerably less because not all of the shares are voted.

**Characteristics of Common Stocks** The *par value* (stated or face value) for a common stock, unlike a bond or preferred stock, is generally not a significant economic variable. Corporations can make the par value any number they choose—for example, the par value of Coca-Cola is \$0.25 per share. An often-used par value is \$1. Some corporations issue no-par stock. New stock is usually sold for more than par value, with the difference recorded on the balance sheet as "capital in excess of par value."

**Book Value** The accounting value of the equity as shown on the balance sheet

The **book value** of a corporation is the accounting value of the equity as shown on the books (i.e., balance sheet). It is the sum of common stock outstanding, capital in excess of par value, and retained earnings. Dividing this sum, or total book value, by the number of common shares outstanding produces the *book value per share*. In effect, book value is the accounting value of the stockholders' equity. Although book value per share plays a role in making investment decisions, market value per share is the critical item of interest to investors.

# Example 2-7

The Coca-Cola Company reported \$20.472 billion as total stockholders' equity for fiscal yearend 2008. This is the book value of the equity. Based on average shares outstanding of 2.315 billion for that year (a figure typically obtained for a company from its annual report), the book value per share was \$8.84.

The market value (i.e., price) of the equity is the variable of concern to investors. The *aggregate market value* for a corporation, calculated by multiplying the market price per share of the stock by the number of shares outstanding, represents the total value of the firm as determined in the marketplace. The market value of one share of stock, of course, is simply the observed current market price. At the time the observation for Coca-Cola's book value was recorded, the market price was in the \$50 range.

**Dividends** Cash payments made by corporations to stock holders **Cash Dividends** The only cash payments regularly made by corporations *directly* to their stockholders are **dividends**. They are decided on and declared by the board of directors and can range from zero to virtually any amount the corporation can afford to pay (typically, up to 100 percent of present and past net earnings).

The common stockholder has no specific promises to receive any cash from the corporation since the stock never matures, and dividends do not have to be paid.

Common stocks involve substantial risk because the dividend is at the company's discretion and stock prices typically fluctuate sharply, which means that the value of investors' claims may rise and fall rapidly over relatively short periods of time.

### Investment Insight

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Companies may choose to repurchase their stocks nu as an alternative way to affect their stockholders. co In effect, cash is paid out by the company and the sh

number of shares of its stock is reduced. The most common repurchase method is the repurchase of shares in the open market.

The following two dividend terms are important:

**Dividend Yield** Dividends divided by current stock price or D\P ■ The **dividend yield** is the income component of a stock's return stated on a percentage basis. It is one of the two components of total return, discussed in Chapter 6. Dividend yield typically is calculated as the most recent 12-month dividend divided by the current market price.

### Equity Securities 4

**Payout Ratio** Dividends divided by earnings or D\E

■ The **payout ratio** is the ratio of dividends to earnings. It indicates the percentage of a firm's earnings paid out in cash to its stockholders. The complement of the payout ratio, or (1.0 – payout ratio), is the *retention ratio*, and it indicates the percentage of a firm's current earnings retained by it for reinvestment purposes.

**Example 2-8** Coca-Cola's 2008 earnings were \$2.51 per share, and it paid an annual dividend per share that year of \$1.52. Assuming a price for Coca-Cola of \$39 (early March 2009), the dividend yield would be 3.9 percent. The payout ratio was \$1.52/\$2.51, or 60.6 percent.

**How Dividends Are Paid** Dividends traditionally are declared and paid quarterly, although some firms such as Disney, McDonald's, and Waste Management are now moving to annual dividend payments. To receive a declared dividend, an investor must be a *holder of record* on the specified date that a company closes its stock transfer books and compiles the list of stockholders to be paid. However, to avoid problems the brokerage industry has established a procedure of declaring that the right to the dividend remains with the stock until four days before the holder-of-record date. On this fourth day, the right to the dividend leaves the stock; for that reason this date is called the *ex-dividend* date.

Example 2-9

Assume that the board of directors of Coca-Cola meets on May 24 and declares a quarterly dividend, payable on July 2. May 24 is called the *declaration date*. The board will declare a *holder-of-record date*—say, June 7. The books close on this date, but Coke goes *ex-dividend* on June 5. To receive this dividend, an investor must purchase the stock by June 4. The dividend will be mailed to the stockholders of record on the *payment date*, July 2.

**Stock Dividend** A payment by the corporation in shares of stock rather than cash **Stock Dividends and Stock Splits** Dividends other than cash, as well as splits in the stock itself, continue to attract investor attention. A **stock dividend** is a payment by the corporation in shares of stock instead of cash. A **stock split** involves the issuance of a larger number of shares in proportion to the existing shares outstanding. On a practical basis, there is little difference between a stock dividend and a stock split.<sup>39</sup>

Example 2-10

A 5 percent stock dividend would entitle an owner of 100 shares of a particular stock to an additional five shares. A two-for-one stock split would double the number of shares of the stock outstanding, double an individual owner's number of shares (e.g., from 100 shares to 200 shares), and cut the price in half at the time of the split.

Stock Split The issuance by a corporation of shares of common stock in proportion to the existing shares outstanding The important question to investors is the value of the distribution, whether a dividend or a split. It is clear that the recipient has more shares (i.e., more pieces of paper), but has anything of real value been received? Other things being equal, these additional shares do not represent additional value because proportional ownership has not changed. Quite simply, the pieces of paper, stock certificates, have been repackaged.<sup>40</sup> For example, if you own 1,000 shares of a corporation that has 100,000 shares of stock outstanding, your

<sup>&</sup>lt;sup>39</sup>With a stock split, the book value and par value of the equity are changed; for example, each would be cut in half with a two-for-one split.

<sup>&</sup>lt;sup>40</sup>Stock data, as reported to investors in most investment information sources and in the company's reports to stockholders, typically are adjusted for all stock dividends and stock splits. Obviously, such adjustments must be made when stock splits or stock dividends occur in order for legitimate comparisons to be made for the data.

proportional ownership is 1 percent; with a two-for-one stock split, your proportional ownership is still 1 percent, because you now own 2,000 shares out of a total of 200,000 shares outstanding. If you were to sell your newly distributed shares, however, your proportional ownership would be cut in half.

**P/E Ratio** (Earnings Multiplier) The ratio of stock price to earnings, using historical, current, or estimated data **P/E Ratio (Earnings Multiplier)** The **P/E ratio**, also referred to as the *earnings multiplier*, can be calculated as the ratio of the current market price to the firm's most recent 12-month earnings. As reported daily in newspapers, and in most other sources, it is an *identity* because it is calculated simply by dividing the current price by the latest 12-month earnings. However, variations of this ratio are often used in the valuation of common stocks. In fact, the P/E ratio in its various forms is one of the best-known and most often cited variables in security analysis and is familiar to almost all investors.<sup>41</sup>

Because the price of a stock, which is determined in the marketplace, is divided by its earnings, the P/E ratio shows how much the market as a whole is willing to pay per dollar of earnings.

It is standard investing practice to refer to stocks as selling at, say, 10 times earnings, or 25 times earnings. Investors have traditionally used such a classification to categorize stocks. Growth stocks, for example, typically sell at high multiples, compared to the average stock, because investors are willing to pay more for their expected higher earnings growth.

The P/E ratio is a widely reported variable, appearing in daily newspapers carrying stock information, in brokerage reports covering particular stocks, in magazine articles recommending various companies, and so forth.

**Example 2-11** The price of Coca-Cola in early March 2009 was \$39. The most recent 12-month earnings per share for the company at the time was \$2.51. The P/E ratio, therefore, was 15.5.

# INVESTING INTERNATIONALLY IN EQUITIES

U.S. investors, like investors in many other countries, invest today in the securities of other countries as they seek higher returns, and possibly lower risks. Furthermore, changes in the value of the dollar can greatly increase interest in owning foreign securities. Such was the case in 2004 and early 2005 as the dollar continued its drop against other currencies. While U.S. investors typically choose to use investment companies—the mutual funds, closed-end funds, and exchange-traded funds—discussed in Chapter 3 to pursue international investing, they also buy individual foreign securities.

American Depository Receipts (ADRs) Securities representing an ownership interest in the equities of foreign companies

**American Depository Receipts (ADRs)** A popular way to buy foreign companies is to purchase **American Depository Receipts (ADRs)**. ADRs represent indirect ownership of a specified number of shares of a foreign company. These shares are held on deposit in a bank in the issuing company's home country, and the ADRs are issued by

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<sup>&</sup>lt;sup>41</sup>In calculating P/E ratios, on the basis of either the latest reported earnings or the expected earnings, problems can arise when comparing P/E ratios among companies if some of them are experiencing, or are expected to experience, abnormally high or low earnings. To avoid this problem, some market participants calculate a *normalized* earnings estimate. Normalized earnings are intended to reflect the "normal" level of a company's earnings; that is, transitory effects are presumably excluded, thus providing the user with a more accurate estimate of "true" earnings.

### Derivative Securities 43

U.S. banks called depositories. In effect, ADRs are tradable receipts issued by depositories that have physical possession of the foreign securities through their foreign correspondent banks or custodian.<sup>42</sup> The bank (or its correspondent) holding the securities collects the dividends, pays any applicable foreign withholding taxes, converts the remaining funds into dollars, and pays this amount to the ADR holders.<sup>43</sup>

ADRs are an effective way for an American investor to invest in specific foreign stocks without having to worry about currency problems, bank accounts, and brokerage issues. At the beginning of 2009 there were hundreds of ADRs listed on U.S. exchanges and markets. Examples of well-known companies that trade as ADRs include De Beers Consolidated, Toyota, Volvo, Sony, and Glaxo. The prices of ADRs are quoted in dollars, and dividends are paid in dollars. Note that while some companies in developing countries have issued ADRs, some prominent foreign companies have no ADR that trades in the United States. The only realistic alternative in this situation is to purchase portfolios of foreign securities by purchasing mutual funds, closed-end funds, or exchange-traded funds (as explained in Chapter 3) specializing in foreign securities.

**Example 2-12** The Indonesian Satellite Corporation, which provides cellular service in Indonesia, has an ADR listed on the NYSE. On the other hand, Samsung, a Korean company that was the most profitable technology company in the world in 2004, has no ADR traded in the United States. However, an investor could buy the South Korea exchange-traded fund which has Samsung as one of its holdings (exchange-traded funds are explained in Chapter 3).

# CHECKING YOUR UNDERSTANDING

- 7. Why might investors opt to hold preferred stocks rather than bonds in their portfolios?
- 8. Distinguish between the D/P, the D/E, and the P/E.
- **9.** Assume that you wish to take advantage of an expected change in exchange rates. Would ADRs be an effective way for you to do this?

# DERIVATIVE SECURITIES

**Derivative Securities** Securities that derive their value in whole or in part by having a claim on some underlying security

Warrant A corporatecreated option to purchase a stated number of common shares at a specified price within a specified time (typically several years) We will focus our attention here on the two types of derivative securities that are of interest to most investors. Options and futures contracts are **derivative securities**, so named because their value is derived from their connected underlying security. Numerous types of options and futures are traded in world markets. Furthermore, there are different types of options other than the puts and calls discussed here. For example, a **warrant** is a corporatecreated long-term option on the underlying common stock of the company. It gives the holder the right to buy the stock from the company at a stated price within a stated period of time, typically several years.

Options and futures contracts share some common characteristics. Both have standardized features that allow them to be traded quickly and cheaply on organized exchanges. In addition to facilitating the trading of these securities, the exchange guarantees the performance

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<sup>&</sup>lt;sup>42</sup>ADRs are initiated by the depository bank, assuming the corporation does not object.

<sup>&</sup>lt;sup>43</sup>The securities are to be held on deposit as long as the ADRs are outstanding. Holders can choose to convert their ADRs into the specified number of foreign shares represented by paying a fee.

of these contracts and its clearinghouse allows an investor to reverse his or her original position before maturity. For example, a seller of a futures contract can buy the contract and cancel the obligation that the contract carries. The exchanges and associated clearinghouses for both options and futures contracts have worked extremely well.

Options and futures contracts have important differences in their trading, the assets they can affect, their riskiness, and so forth. Perhaps the biggest difference to note now is that a futures contract is an obligation to buy or sell, but an options contract is only the right to do so, as opposed to an obligation. The buyer of an option has limited liability, but the buyer of a futures contract does not.

Options and futures contracts are important to investors because they provide a way for investors to manage portfolio risk. For example, investors may incur the risk of adverse currency fluctuations if they invest in foreign securities, or they may incur the risk that interest rates will adversely affect their fixed-income securities. Options and futures contracts can be used to limit some, or all, of these risks, thereby providing risk-control possibilities. Thus, options and futures are useful to hedgers who wish to limit price fluctuations. On the other hand, speculators can use options and futures to try to profit from price fluctuations.

# **OPTIONS**

**Options** Rights to buy or sell a stated number of shares of a security within a specified period at a specified price

**Puts** An option to sell a specified number of shares of stock at a stated price within a specified period

**Calls** An option to buy a specified number of shares of stock at a stated price within a specified period

**LEAPs** Puts and calls with longer maturity dates, up to two years

In today's investing world, the word **options** refers to **puts** and **calls**. Options are created not by corporations but by investors seeking to trade in claims on a particular common stock. A call (put) option gives the buyer the right, but not the obligation, to purchase (sell) 100 shares of a particular stock at a specified price (called the exercise price) within a specified time. The maturities on most new puts and calls are available up to several months away, although one form of puts and calls called **LEAPs** has maturity dates up to two and one-half years. Several exercise prices are created for each underlying common stock, giving investors a choice in both the maturity and the price they will pay or receive. Equity options are available for many individual stocks, but LEAPs are available for only about 450 stocks.

Buyers of calls are betting that the price of the underlying common stock will rise, making the call option more valuable. Put buyers are betting that the price of the underlying common stock will decline, making the put option more valuable. Both put and call options are written (created) by other investors who are betting the opposite of their respective purchasers. The sellers (writers) receive an option premium for selling each new contract while the buyer pays this option premium.

Once the option is created and the writer receives the premium from the buyer, it can be traded repeatedly in the secondary market. The premium is simply the market price of the contract as determined by investors. The price will fluctuate constantly, just as the price of the underlying common stock changes. This makes sense, because the option is affected directly by the price of the stock that gives it value. In addition, the option's value is affected by the time remaining to maturity, current interest rates, the volatility of the stock, and the price at which the option can be exercised.

**Using Puts and Calls** Puts and calls allow both buyers and sellers (writers) to speculate on the short-term movements of certain common stocks. Buyers obtain an option on the common stock for a small, known premium, which is the maximum that the buyer can lose. If the buyer is correct about the price movements on the common, gains are magnified in relation to having bought (or sold short) the common because a smaller investment is required. However, the buyer has only a short time in which to be correct. Writers (sellers) earn the premium as income, based on their beliefs about a stock. They win or lose, depending on whether their beliefs are correct or incorrect.

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### A Final Note 45

Options can be used in a variety of strategies, giving investors opportunities to manage their portfolios in ways that would be unavailable in the absence of such instruments. For example, since the most a buyer of a put or call can lose is the cost of the option, the buyer is able to truncate the distribution of potential returns. That is, after a certain point, no matter how much the underlying stock price changes, the buyer's position does not change.

# **FUTURES CONTRACTS**

Futures contracts have been available on commodities such as corn and wheat for a long time. They are also available on several financial instruments, including stock market indexes, currencies, Treasury bills, Treasury bonds, bank certificates of deposit, and GNMAs.

A **futures contract** is an agreement that provides for the future exchange of a particular asset between a buyer and a seller. The seller contracts to deliver the asset at a specified delivery date in exchange for a specified amount of cash from the buyer. Although the cash is not required until the delivery date, a "good faith deposit," called the margin, is required to reduce the chance of default by either party. The margin is small compared to the value of the contract.

A long position represents a commitment to purchase the asset on the delivery date, while a short position represents a commitment to deliver the asset at contract maturity. Although the words "buy" and "sell" are used in conjunction with futures contracts, these words are figurative only because a futures contract is not actually bought or sold. Instead, each party enters into the contract by mutual agreement, and no money changes hands at this time.

Most futures contracts are not exercised. Instead, they are "offset" by taking a position opposite the one initially undertaken. For example, a purchaser of a May Treasury bill futures contract can close out the position by selling an identical May contract before the delivery date, while a seller can close out the same position by purchasing that contract.

The person holding a long position will profit from an increase in the price of the asset, while a person holding a short position will profit from a decrease. Every long position is offset by a short position; therefore, when all futures participants are taken into account, the aggregate profits must also be zero. This is what is meant when we say the futures contract is a zero-sum game.

**Using Futures Contracts** Most participants in futures are either hedgers or speculators. Hedgers seek to reduce price uncertainty over some future period. For example, by purchasing a futures contract, a hedger can lock in a specific price for the asset and be protected from adverse price movements. Similarly, sellers can protect themselves from downward price movements. Speculators, on the other hand, seek to profit from the uncertainty that will occur in the future. If prices are expected to rise (fall), contracts will be purchased (sold). Correct anticipations can result in very large profits because only a small margin is required.

# A Final Note

There are, of course, other financial assets that an investor could consider. Exchange traded funds are often cited today for investors to consider. Hedge funds are often in the news. Both of these will be discussed in Chapter 3.

Futures Contract Agreement providing for the future exchange of a particular asset at a currently determined market price

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# Summary

- Important investment alternatives for investors include nonmarketable assets, money market instruments, capital market securities (divided into fixedincome and equity securities), derivative securities, and indirect investments in the form of investment company shares.
- Nonmarketable financial assets, widely owned by investors, include savings deposits, nonnegotiable certificates of deposit, money market deposit accounts, and U.S. savings bonds.
- Money market investments, characterized as shortterm, highly liquid, very safe investments, include (but are not limited to) Treasury bills, negotiable certificates of deposit (CDs), commercial paper, and banker's acceptances. The first three are obligations (IOUs) of the federal government, banks, and corporations, respectively.
- Capital market investments have maturities in excess of one year.
- Fixed-income securities, one of the two principal types of capital market securities, have a specified payment and/or repayment schedule. They include

four types of bonds: U.S. government, federal agency, municipal, and corporate bonds.

- Equity securities include preferred stock and common stock.
- Preferred stock, while technically an equity security, is often regarded by investors as a fixed-income type of security because of its stated (and fixed) dividend. Preferred has no maturity date but may be retired by call or other means.
- Common stock (equity) represents the ownership of the corporation. The stockholder is the residual claimant in terms of both income and assets.
- Derivative securities include options and futures.
- Options allow both buyers and sellers (writers) to speculate on and/or hedge the price movements of stocks for which these claims are available. Calls (puts) are multiple-month rights to purchase (sell) a common stock at a specified price.
- Futures contracts provide for the future exchange of a particular asset between a buyer and a seller. A recent innovation is options on futures.

# **Key Words**

American Depository	Debenture	Indirect investing	Preferred stock
Receipts (ADRs)	Derivative securities	Junk bonds	Puts
Asset-backed securities	Direct access notes	LEAPs	Senior securities
(ABS)	(DANs)	Liquidity	Stock dividend
Bonds	Direct investing	Money markets	Stock split
Bond ratings	Dividend	Mortgage-backed	Treasury bill
Book value	Dividend yield	securities	Treasury bonds
Calls	Fixed-income	Municipal bonds	Treasury Inflation-Indexed
Call provision	securities	Options	Securities (TIPS)
Capital markets	Futures contract	Par value (face value)	Warrant
Common stock	Government agency	Payout ratio	Zero coupon
Corporate bonds	securities	P/E ratio	bond

# Questions

- **2-1** What is meant by "indirect" investing?
- **2-2** What does it mean for Treasury bills to be sold at a discount?
- **2-3** Distinguish between a negotiable certificate of deposit and the certificate of deposit discussed in the section "Nonmarketable Securities."
- **2-4** Name the four issuers of bonds discussed in this chapter. Which do you think would be most risky as a general proposition?
- **2-5** From an issuer standpoint, what is the distinction between Fannie Mae and Ginnie Mae?
- **2-6** Name and explain the difference between the two types of municipal securities.
- **2-7** What does it mean to say that investors in Ginnie Maes face the risk of early redemption?
- **2-8** What are the advantages and disadvantages of Treasury bonds?
- **2-9** Is there any relationship between a savings bond and a U.S. Treasury bond?
- **2-10** Why is preferred stock referred to as a "hybrid" security?
- **2-11** Why is the common stockholder referred to as a "residual claimant"?
- **2-12** Do all common stocks pay dividends? Who decides?
- **2-13** What is meant by the term *derivative security*?
- **2-14** What is meant by the term *securitization*?
- **2-15** Give at least two examples of asset-backed securities.
- **2-16** Why should we expect six-month Treasury bill rates to be less than six-month CD rates or sixmonth commercial paper rates?
- **2-17** Why is the call provision on a bond generally a disadvantage to the bondholder?
- **2-18** Is a typical investor more likely to hold zero coupon bonds in a taxable account or a nontaxable account? Why?
- **2-19** What are the potential advantages and disadvantages of DANs (Direct Access Notes) to investors compared to conventional bonds?

- **2-20** What is an ADR? What advantages do they offer investors?
- **2-21** Of what value to investors are stock dividends and splits?
- **2-22** What are the advantages and disadvantages of being a holder of the common stock of IBM as opposed to being a bondholder?
- **2-23** Assume that a company in whose stock you are interested will pay regular quarterly dividends soon. You determine that a dividend of \$3.20 is indicated for this stock. The board of directors has declared the dividend payable on September 1, with a holder-of-record date of August 15. When must you buy the stock to receive this dividend, and how much will you receive if you buy 150 shares?
- **2-24** With regard to bond ratings, which of the following statements is INCORRECT?
  - (a) The first four categories represent investment grade securities.
  - (b) Ratings reflect the absolute probability of default.
  - (c) Both corporates and municipals are rated.
  - (d) Ratings are current opinions on the relative quality of bonds.
- **2-25** Preferred stocks and common stocks are similar in that
  - (a) both are equity securities.
  - (b) both pay a stated and fixed dividend.
  - (c) the expected return for each can be estimated with precision for the next period.
  - (d) both have an equal claim on the income stream of the company.
- **2-26** The common stockholder
  - (a) is guaranteed a specified dividend return.
  - (b) is senior to (that is, ranks above) debtholders in terms of payment.
  - (c) takes relatively small risk in any given year.
  - (d) can best be described as the residual claimant.

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# **Problems**

- **2-1** Assuming an investor is in the 15 percent tax bracket, what taxable equivalent must be earned on a security to equal a municipal bond yield of 5.5 percent?
- **2-2** Assume an investor is in the 28 percent tax bracket? Other things equal, after taxes are paid would this investor prefer a corporate bond paying 8.4 percent or a municipal bond paying 6 percent?
- **2-3** Assume an investor is in the 28 percent federal tax bracket and faces a 7 percent marginal state tax rate. What is the combined TEY for a municipal bond paying 6 percent?

# CFA

**2-4** Given the information in the first and third columns, complete the table in the second and fourth columns:

Quoted Price	Price per \$1 of Par Value	Par Value	Dollar Price
96 1/4		\$1,000	
102 7/8		\$5,000	
109 9/16		\$10,000	
68    /32		\$100,000	

SOURCE: Chapter I, Fixed Income Analysis. Question #2, pg. 5

# CFA

**2-5** For each of the following issues, indicate whether the price of the issue should be par value, above par value, or below par value:

	Issue	Coupon Rate	Yield Required by Market
a.	A	5 1/4 %	7.25%
b.	В	6 5/8%	7.15%
С.	С	0%	6.20%
d.	D	5 7/8%	5.00%
e.	Е	4 1/2%	4.50%

SOURCE: Chapter 2, Fixed Income Analysis. Question #1, pg. 11

# Spreadsheet Exercises

- **2-1** Solve for the taxable equivalent yields given the following yields on municipal bonds and marginal tax rates. Once you set up the cell correctly for the first yield in any tax rate column, you should be able to copy this cell down the column, thereby solving for all yields in that column. Note that you may want to use the absolute address for one of these cells.
  - (a) For an investor in the 28 percent tax bracket, what is the approximate point of indifference between a corporate bond yield and a municipal bond yielding 5.75 percent (ignore state taxes).
  - (b) For an investor in the 35 percent tax bracket, what must she earn on a municipal bond to be equivalent to a corporate bond yielding 10 percent?

### Checking Your Understanding 49

Marginal tax rates					
Munc. Yld.	0.15	0.25	0.28	0.33	0.35
4 4.25 4.5 4.75 5 5.25					
5.5 5.75					
6 6.25					
6.5 6.75					
7					

# **Checking Your Understanding**

- **2-1** Money market securities can be sold in financial markets, where neither the buyer or seller is identified to each other. Nonmarketable financial assets must be handled by the owner of the asset.
- **2-2** You should expect the yields on money market securities to be within a few tenths of a percent of each other because they are very short term, very high quality assets with little risk of default.
- **2-3** The Treasury bill is the benchmark security for the economy because bills are auctioned off every week, and the rates offered on them reflect current demand and supply conditions for short-term funds without credit risk. Other interest rates are scaled up from this short-term, riskless rate by adding time and risk premiums.
- **2-4** No, because bond ratings are a measure of the relative probability of default. There is some absolute probability, although extremely small, that an AAA bond will default.
- **2-5** Agree. Municipal bond yields must be adjusted to a before-tax basis to make them comparable to corporate bond yields. This is done by calculating the TEY.
- **2-6** Risk-averse investors can buy junk bonds, or any financial asset, if they expect to be adequately compensated for the risk. The greater the risk, the greater the expected return should be.
- **2-7** Preferred stocks could have higher expected returns and have no maturity date. Also, preferred stocks can be much easier to buy and sell than individual bonds.
- **2-8** D/P is the dividend yield, dividend divided by current price; D/E is the payout ratio, dividends divided by earnings. The P/E is price divided by earnings and indicates the multiple of earnings that investors pay for a stock.
- 2-9 No. ADRs do not involve foreign currencies, but rather are stated on a dollar basis.

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