

Chapter 2: Investment Alternatives

CHAPTER OVERVIEW

The purpose of Chapter 2 is to provide an overview of the major types of financial assets available to investors and discussed in later chapters. It also outlines the important alternatives of direct and indirect investing, thereby providing the foundation for Chapter 3.

Obviously, **financial assets cannot be discussed in detail in this chapter**; however, instructors can provide additional details as they see fit. What is important here is for students to be exposed to the major types of financial assets early in the course to allow them to understand the basics of alternative investment opportunities. For example, if an instructor were to refer to an example or concept involving a call option or a convertible security, the student may have no idea what is being discussed. A good example is derivatives, a topic of public discussion due to the hedging activities of most firms.

Chapter 2 first discusses the non-marketable alternatives available to investors, such as savings accounts, because many students have encountered these already. Also, they offer a good contrast to the marketable securities, which are the focus of the text.

Money market securities are discussed almost exclusively in Chapter 2, with limited mention in subsequent chapters. The basic pricing and return formulas are reported for money market securities to introduce students to the unique features of these securities, and to get students thinking about basic return calculations.

Chapter 2 concentrates on the major capital market assets, bonds and stocks, while providing a very brief coverage of derivative securities. The chapter also includes a short discussion of private equity, which allows high net worth investors and institutions to directly invest in nonpublic companies. Most students will have heard about private equity funds, but will have little knowledge about them, thus, they will find the topic informative and interesting.

The idea of **indirect investing**--the ownership of investment company shares--is introduced in Chapter 2 in Exhibit 2.1. This is because of the important alternative that such ownership provides all investors. They can turn their funds over to a mutual fund or ETF and not have to make investment decisions. It is desirable for students to think about this alternative early in their study. Many investors will opt for a combination of direct and indirect investing, and this alternative needs to be explained early in the course. Chapter 3 is devoted to indirect investing and provides a detailed discussion of investment companies.

CHAPTER OBJECTIVES

To provide an overview of the major financial assets available to investors and discussed in subsequent chapters.

To provide information on the basic features of money market securities including how they are priced and their common return measures.

To provide some detail on the financial assets of most importance, bonds and stocks.

To explain investors' alternatives, which consist of direct investing, indirect investing, or, as is often done, a combination of the two.

MAJOR CHAPTER HEADINGS [Contents]

Organizing Financial Assets

Direct Investing

[invest directly and indirectly in money market, capital market and other securities]

A Global Perspective

[why this is important in today's investing environment]

Nonmarketable Financial Assets

[savings accounts; certificates of deposit (CDs); money market deposit accounts (MMDAs); U.S. government savings bonds--key features summarized in table form]

Money Market Securities

The Treasury Bill

[pricing money market securities, e.g. T-bills, and money market return formulas; important money market securities; the bank discount rate]

Money Market Rates

Capital Market Securities

Fixed-Income Securities

Bonds

[definition; characteristics--par value, maturity, zero coupon bond, call feature, bond prices, accrued interest, discounts and premiums]

Types of Bonds

[Treasuries, TIPS, government agency securities, mortgage-backed securities, municipal securities and taxable equivalent yield, corporates, convertibles, bond ratings, junk bonds]

Asset-backed Securities

[definition, examples; securitization trends; why investors buy asset-backed securities]

Returns on Fixed-Income Securities

[general relationships]

Equity Securities

Preferred Stock

[definition; characteristics]

Common Stock

[definition; characteristics-book value, market value, dividends, dividend yield, payout ratio, stock dividends and stock splits, the P/E ratio]

Investing Globally in Equities

[ADRs—definition and examples]

Private Equity

[definition; investor types; types of funds]

Derivative Securities

[Corporate-created securities: warrants; options; futures contracts]

Options

[definition; basics of puts and calls]

Futures Contracts

[definition; purposes]

A Final Note

[other security types; ETFs and hedge funds]

POINTS TO NOTE ABOUT CHAPTER 2

Exhibits, Figures and Tables

Exhibit 2.1 is useful for organizing financial assets into one diagram. It illustrates both direct and indirect investing.

Exhibit 2.2 outlines the major non-marketable financial assets in order that this topic can be covered quickly and efficiently.

Exhibit 2.3 discusses the major money market securities in table format, relieving the student and instructor from even more tedious details in the body of the chapter. This table contains the relevant facts about these assets. Most individual investors will own these assets indirectly through money market mutual funds.

Exhibit 2.4 contains a basic summary of S&P debt rating definitions.

ANSWERS TO END-OF-CHAPTER QUESTIONS

- 2.1.** **Indirect investing** involves the purchase and sale of investment company shares. Since investment companies hold portfolios of securities, an investor owning investment company shares indirectly owns a pro-rata share of a portfolio of securities.
- 2.2.** Treasury bills are auctioned weekly in a bid process. Bills are sold at less than face value (a discount) and redeemed at maturity for face value, with this spread constituting an investor's return. The greater the discount (the smaller the price paid for the bills), the larger the return.
- 2.3.** *Negotiable certificates of deposit (CDs)* are marketable deposit liabilities of the issuing bank that pay a stated interest rate and are redeemable from the issuer at maturity by the holder. The minimum deposit is \$100,000. Because they are negotiable, they can be sold in the open market before maturity.

Non-marketable certificates of deposit are sold by banks and other institutions. Penalties may exist for early withdrawal of funds. Most importantly, these CDs are nonnegotiable. The owner (purchaser) must deal directly with the issuing institution.

- 2.4.** Bonds are issued by the federal government, federal government agencies, municipalities, and corporations. The last two have the most risk. If one has to be chosen as the most risky, it presumably would be corporates since general obligation municipals (as opposed to revenue bonds) are backed by the taxing power of the issuer.
- 2.5.** *Fannie Maes* are issued by the Federal National Mortgage Association, a government-sponsored agency which became a privately-owned corporation traded on the NYSE. In September, 2008, the government seized control of Fannie Mae and Freddie Mac, placing them in a government conservatorship, somewhat similar to a bankruptcy reorganization. These securities are much more risky now than before the crisis of 2008.

Ginnie Maes are issued by the Government National Mortgage Association, a wholly-owned government agency issuing fully-backed securities. Ginnie Mae is known for its pass-through certificates, where both principal and interest are passed through monthly to the certificate holders.

- 2.6.** The 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.
- 2.7.** As a result of mortgage refinancings, investors in Ginnie Maes face the risk that the mortgages may be repaid earlier than expected by borrowers refinancing their obligations.

- 2.8. The advantages of Treasury bonds include:
- (1) the practical elimination of default risk
 - (2) the minimization of call risk
 - (3) a very liquid and viable market
 - (4) the interest they pay is exempt from state and local income taxes

The possible disadvantages of Treasury bonds are the lower rates of return and the exposure to inflation risk (unless the new inflation-adjusted bonds are used).

- 2.9. A savings bond represents the non-marketable part of the U.S. government debt. It cannot be sold in the open market. Treasury bonds represent the marketable portion of federal debt and can be sold at virtually any time.
- 2.10. *Preferred stock* is referred to as a hybrid security because it has some features similar to fixed-income securities (it pays a fixed return and has a meaningful par value) and some features similar to equity securities (it never matures and it pays dividends).
- 2.11. Common stockholders are the residual claimants of a corporation because they are entitled to all earnings after payment of any debt interest and any preferred dividends. In case of liquidation, they are entitled to any assets remaining after bondholder and preferred stockholder claims have been satisfied.
- 2.12. There is no requirement for a company to pay a dividend on the common stock. Any payment is decided by the company's board of directors, who can change the dividend (or abolish it) at any time.
- 2.13. A **derivative security** is a security that derives its value from other more basic underlying assets, such as securities, commodities, or currencies. Derivative securities are also referred to as contingent claims.

Equity derivative securities derive all, or part, of their value from the underlying common stock; that is, part, or all, of their value is due to their claim on the stock.

Corporate-created equity-derivative securities include rights, warrants and convertibles, all of which are issued by corporations while *investor-created equity-derivative securities* involve options (puts and calls), which are written and bought by investors (both individuals and institutions).

Futures contracts are also derivative securities.

- 2.14. **Securitization** refers to the transformation of illiquid risky individual loans into more liquid, lower risk securities.
- 2.15. The classic example of asset-backed securities is the mortgage-backed securities issued by the federal agencies to support the mortgage market, such as Ginnie Maes. Other recent examples include car loans, aircraft leases, credit-card receivables, railcar leases,

small-business loans, and so forth.

2.16. For practical purposes, Treasury bills, like other Treasury securities, are considered to be default-free securities. Although very safe, both bank CDs and commercial paper carry some risk of default, however small. In addition, the interest on T-bills is exempt from state and local income taxes, making them tax-advantaged securities. Therefore, T-bills should have a lower return.

2.17. The *call feature* is a disadvantage to investors who must give up a higher-yielding bond and replace it (to continue having a position) with a lower-yielding bond. Issuers will call in bonds when interest rates have dropped substantially (e.g., two or three percentage points) from a period of very high rates.

Of course, the bonds may be protected from call for a certain period and cannot be called although the issuer would like to do so. Generally, once unprotected, issuers will call bonds when it is economically attractive to do so, which is when the discounted benefits outweigh the discounted costs of calling the bonds.

2.18. Investors are more likely to hold zero coupon bonds in a non-taxable account because holders must pay taxes each year on zero coupons as if they actually received the interest. By holding zeros in a non-taxable account, the tax can be deferred.

2.19. Home country bias refers to the bias of over-weighting securities of one's home country, while under-weighting securities of foreign firms. This bias is closely related to the familiarity bias, which causes investors to over-weight securities of firms that they are more familiar with.

2.20. An **ADR** represents indirect ownership of a specified number of shares of a foreign company. These shares are held on deposit in a bank in the issuer's home country, and the ADRs are issued by U. S. banks called depositories. In effect, then, ADRs are tradable receipts.

2.21. **Stock dividends and splits** do not, other things being equal, represent additional value. Of course, if a stock dividend is accompanied by a higher cash dividend, the stockholder gains, but this is a change in the dividend policy. Some people believe that these transactions increase the ownership of a stock by bringing it into a more favorable price range, but even if true, it is doubtful this would add real value.

2.22. A stockholder is the residual claimant in a corporation, entitled to the earnings remaining after the bondholders and preferred stockholders are paid (of course, all earnings are not usually paid out to stockholders). Also, in case of liquidation, the stockholders are entitled to the residual assets after the bondholders and preferred stockholders (as well as other) claims are settled.

In the case of financially sound corporations, the bondholder has considerable assurance of receiving the interest payments. However, the bondholder will never receive more

than the stated interest and principal payments. While stockholders assume the risk that returns will be negative in some years, they expect some large returns in other years and, also expect, on average, to earn more than the bondholders.

- 2.23.** The stock goes ex-dividend on Thursday, August 14th. An investor must buy the stock on or before Wednesday, August 13th to receive the dividend.

With 150 shares, $150 (\$3.20) = \480 will be received.

- 2.24.** (b)—ratings reflect the relative likelihood of default.
- 2.25.** (a)—even though they have differing features, both are considered equities
- 2.26.** (d)—stockholders receive what is left over after the fixed claimants have been paid.
- 2.27.** The two types of private equity are buyout funds and venture capital funds. Buyout funds acquire established companies and take actions to improve the operations of the underlying firms. The underlying firms are generally firms that have been operating for some time, and thus, they have experienced management, a financial history, a significant asset base, etc.
- In contrast, venture capital funds hold firms that are in many cases relatively newly formed entities. Thus, they often have inexperienced management, little or no financial history, a limited asset base and a relatively high cash burn rate.
- Generally, venture capital funds represent a riskier investment relative to buyout funds as the probability of failure is higher; however, the potential gains are also frequently larger.

ANSWERS TO END-OF-CHAPTER PROBLEMS

2.1. T-bill price = $\$10,000 \times [1 - 0.0245 \times 170/360] = \$9,884.31$

$$R_{BEY} = [(10,000 - 9,884.31)/9,884.31 \times (365/170)] = 2.51\%$$

$$R_{EAY} = [1 + (10,000 - 9,884.31)/9,884.31]^{365/170} - 1 = 2.53\%$$

2.2. Taxable equivalent yield = tax-exempt municipal yield / (1 – marginal tax rate)

equivalent yield for a tax-exempt yield of 5.5%, for an investor in a 15% tax bracket, is

$$\begin{aligned} \text{Taxable equivalent yield} &= 0.055 / [1 - 0.15] \\ &= 6.47\% \end{aligned}$$

2.3. According to the problem, the corporate bond yields $8.4 (1 - 0.28) = 6.05\%$ after tax.

The municipal bond has a taxable equivalent yield of: $6 / [1 - 0.28] = 8.33\%$

Approach 1: The investor could compare the 6.05 percent after tax corporate bond return to the 6.00 percent return on the muni and select the corporate as the better choice.

Approach 2: Likewise, the investor could compare the 8.4 percent yield on the corporate to the taxable equivalent yield of 8.33% on the muni, again, the corporate is preferred.

Approach 1 and Approach 2 must identify the same bond as being superior because the approaches are mathematically equivalent.

2.4. First, calculate the **effective state rate** as:

$$\text{Marginal state rate} \times (1 - \text{marginal federal rate})$$

$$0.07 \times (1 - 0.28) = 5.04\%$$

Next, calculate the **combined effective fed/st tax rate** as:

$$\text{Combined rate} = \text{effective state rate} + \text{federal rate}$$

$$= 0.0504 + 0.28 = 0.3304$$

Finally, solve the **combined TEY** equation using this new combined rate:

$$\text{Combined TEY} = 0.06 / (1 - 0.3304) = .0896 \text{ or } 8.96\%$$

CFA

- 2.5.** a. Below par value since the coupon rate is less than the yield required by the market.
b. Below par value since the coupon rate is less than the yield required by the market.
c. Below par value since the coupon rate is less than the yield required by the market.
d. Above par value since the coupon rate is greater than the yield required by the market.
e. Par value since the coupon rate is equal to the yield required by the market.

	Issue	Coupon rate	Required yield by the market	Price
a.	A	5.25%	7.25%	Below par
b.	B	6.85%	7.15%	Below par
c.	C	0%	6.20%	Below par
d.	D	5.35%	5.00%	Above par
e.	E	4.50%	4.50%	Par

