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Chapter 1: Understanding Investments

CHAPTER OVERVIEW

Chapter 1 is designed to be a standard introductory chapter. As such, its purpose is to introduce students to the subject of investments, explain what investments is concerned with from a summary viewpoint, and outline what the remainder of the text will cover. It defines important terms such as **investments, security analysis, portfolio management, expected and realized rate of return, risk-free rate of return, risk, and risk tolerance**.

IT IS IMPORTANT TO NOTE that Chapter 1 discusses some important issues, such as the expected return-risk tradeoff that governs the investment process, the uncertainty that dominates investment decisions, the globalization of investments, and the impact of institutional investors. As such, the chapter sets the tone for the entire text and explains to the reader what investments is all about. It establishes a basic framework for the course without going into too much detail at the outset.

Chapter 1 also contains some material that will be of direct interest to students, including the importance of studying investments (using illustrations of the wealth that can be accumulated by compounding over long periods of time) and investments as a profession. The CFA designation is also briefly discussed.

Equally important, Chapter 1 does *not* cover calculations and statistical concepts, data on asset returns, and so forth. The authors feel strongly that Chapter 1 is not the place to do this when most students have little knowledge of what the subject is all about. They are not ready for this type of important material, and since it will not be used immediately, they will lose sight of why it was introduced. The authors believe that it is much more effective to introduce the students *thoroughly* to what the subject involves.

It is highly desirable for instructors to add their own viewpoints at the outset of the course, perhaps using recent stories from the popular press to emphasize what investments is concerned with, why students should be interested in the subject, and so forth. One interesting and important topic that can be discussed in class is investment fraud. Scams continue day after day, and many people lose their life savings. Most people will have at least heard of the Ponzi scheme revealed in late 2008 involving Bernie Madoff. By learning a few basic investing principles, students will be able to avoid these "scams," thereby possibly saving themselves or their family and friends from misfortune.

Chapter 1 also discusses ethics in investing, setting the stage for examples of ethical issues in other chapters.

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CHAPTER OBJECTIVES

To introduce students to the subject matter of investments from an overall viewpoint, including terminology.

To explain the basic nature of the investing decision as a tradeoff between expected **return** and **risk**.

To explain that the decision process consists of **security analysis** and **portfolio management** and that external factors affect this decision process. These factors include *uncertainty*, the necessity to think of investments in a *global context*, the environment involving *institutional investors*, and the impact of the internet on investing.

To organize the remainder of the text.

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MAJOR CHAPTER HEADINGS [Contents]

An Overall Perspective on Investing

Just Say NO!

Establishing a Framework for Investing

Some Definitions
[investment; investments; financial and real assets; marketable securities; portfolio]

A Perspective on Investing
[investing is only one part of overall financial decisions; take a portfolio perspective]

Why Do We Invest?
[to increase monetary wealth]

Take a Portfolio Perspective

The Importance of Studying Investments

The Personal Aspects
[most people make investment decisions; examples of wealth accumulation as a result of compounding; people will be largely responsible for making investing decisions affecting their retirement; an understanding of the subject will help students when reading the popular press]

Investments as a Profession
[various jobs such as security analysts, portfolio managers, stockbrokers, and financial advisors; financial planners; CFA designation]

Understanding the Investment Decision Process

The Basis of Investment Decisions—Return and Risk
[expected return; realized return; risk; risk-averse investor; risk tolerance; the Expected Return-Risk Tradeoff; diagram of tradeoff; ex post vs. ex ante; risk-free rate of return, RF]

Structuring the Decision Process
[a two-step process: security analysis and portfolio management]

Important Considerations in the Investment Decision Process for Today's Investors

The Great Unknown

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[uncertainty dominates decisions--the future is unknown!]

A Global Perspective
[the importance of foreign markets; the euro; emerging markets]

The Importance of the Internet
[using the internet to invest]

Individual Investors vs. Institutional Investors
[individual investors compete with institutional investors, but individuals are the beneficiaries of institutional investor activity; Regulation FD; spin-offs]

Ethics in Investing

Organizing the Text

[Background; Realized and Expected Returns and Risk; Bonds; Stocks; Security Analysis, including both fundamental and technical analysis; Derivative Securities; Portfolio Theory and Capital Market Theory; the Portfolio Management Process and Measuring Portfolio Performance]

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POINTS TO NOTE ABOUT CHAPTER 1

Exhibits, Figures and Tables

Exhibit 1-1 discusses some professional designations used by people in the money management business. It offers a good opportunity to discuss with students the opportunities in the field, such as being a financial planner.

Figure 1-1 is an important figure because it is the basis of investing decisions-indeed, it is the basis of all finance decisions. It shows the expected return-risk tradeoff available to investors. This diagram should be emphasized because it can be used to generate much useful discussion, including:

- The upward-sloping tradeoff that dominates investments.
- The role of RF, the risk-free rate of return.
- The importance of risk in all discussions of investing.
- The different types of financial assets available.
- The distinction between realized and expected return.

NOTE: This diagram is relevant on the first day of class and the last. It is a good way to start the course and end it.

NOTE: Example 1-1 shows wealth accumulations possible from an IRA-type investment. It typically generates considerable student interest to see the ending wealth that can be produced by compounding over time. This type of example can be related to 401(k) plans, which are quickly becoming of primary importance to many people.

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SOME RECOMMENDATIONS WHEN DISCUSSING CHAPTER 1:

1. The expected return-risk tradeoff is fundamental to any understanding of investments. While it seems to be a straightforward concept, I find that students have problems with it. These problems revolve around understanding the realized tradeoff (what did happen) vs. the anticipated tradeoff (what is expected to happen). I discuss the following relationships to show the various tradeoffs.

   (a) The **expected tradeoff** (illustrated in the text), which is always upward sloping because rational investors must expect to receive a larger return if they are to assume more risk. This is the basis of decision-making when investing.

   (b) The **long-term (for example, 50 or more years) realized tradeoff**, as illustrated by the Ibbotson data and the returns data used in Chapter 6. This tradeoff must slope upward if what is taught in investments is to make sense; that is, we have a real problem if over long periods of time, risky assets do not return more than safe assets. And, of course, they have done so in the past. Stocks have returned more than bonds, which have returned more than T-bills, over very long periods of time.

   (c) The **shorter-term realized tradeoff**, where safe assets outperform risky assets. 2000-2002 and 2008 offer the perfect examples. The market declined sharply in each case, and, therefore, T-bills returned more than stocks. On a *realized* basis, investors were penalized for assuming risk. Obviously, they did not expect this to occur.

   Thus, diagrams for (a) and (b) look similar. The difference is the label on the vertical axis: expected return for (a), and realized return for (b).

2. The decline in the economy and in the stock market in 2000-2002 is a good illustration of risk, and of using the recent past to predict the future. During the late 1990s and into part of 2000, we heard a lot about day traders, and how we were now in a new environment where the old standards of valuation, such as profitability, were much less important. Of course, many of the high-flyers crashed and/or went out of business. Today there is a renewed appreciation for the traditional methods of stock valuation.

   The stock market decline of 2008 is a dramatic example of the risk that can impact investors. The decline was dramatic, and most investors who held stocks lost money. Many well known investors and professionally managed funds failed to anticipate this market decline or the extent and severity of it. Many investors found their retirement accounts significantly diminished.

3. It may be good practice to start talking about the dollar, and the euro, at the beginning of the course. Movements in the dollar are a popular topic and an important one.

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ANSWERS TO END-OF-CHAPTER QUESTIONS

1-1. The term **Investments** can be thought of as representing the study of the investment process. An **investment** is defined as the commitment of funds to one or more assets to be held over some future time period.

1-2. Traditionally, the investment decision process has been divided into security analysis and portfolio management.

- **Security analysis** involves the analysis and valuation of individual securities; that is, estimating value, a difficult job at best.

- **Portfolio management** utilizes the results of security analysis to construct portfolios. As explained in Part II, this is important because a portfolio taken as a whole is not equal to the sum of its parts.

1-3. The study of investments is important to many individuals because almost everyone has wealth of some kind and will be faced with investment decisions some time in their lives. One important area where many individuals can make important investing decisions is that of retirement plans, particularly 401(k) plans. In addition, individuals often have some say in their retirement programs, such as allocation decisions to cash equivalents, bonds, and stocks.

The dramatic stock market gains of 1995-1999 and the sharp losses in 2000-2002 and 2008 illustrate well the importance of studying investments. Investors who were persuaded in the past to go heavily, or all, in stocks reaped tremendous gains in their retirement assets as well as in their taxable accounts in 1995-1999 and then often suffered sharp losses in 2000-2002 and 2008.

1-4. A **financial asset** is a piece of paper evidencing some type of financial claim on an issuer, whether private (corporations) or public (governments).

A **real asset**, on the other hand, is a tangible asset such as gold coins, diamonds, or land.

1-5. Investments, in the final analysis, is simply a risk-return tradeoff. In order to have a chance to earn a return above that of a risk-free asset, investors must take risk. The larger the return expected, the greater the risk that must be taken.

The risk-return tradeoff faced by investors making investment decisions has the following characteristics:

- ☞ The risk-return tradeoff is upward sloping because investment decisions involve expected returns (vertical axis) versus risk (horizontal axis).

- ☞ The *vertical intercept* is RF, the risk-free rate of return available to all investors.

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1-6. An investor would expect to earn the risk-free rate of return (RF) when he or she invests in a risk-free asset. This is the zero risk point on the horizontal axis in Figure 1-1.

1-7. **Disagree**. Risk-averse investors will assume risk if they expect to be adequately compensated for it.

1-8. The *basic nature of the investment decision* for all investors is the upward-sloping tradeoff between expected return and risk that must be dealt with each time an investment decision is made.

1-9. **Expected return** is the anticipated return for some future time period, whereas **realized return** is the actual return that occurred over some past period.

1-10. In general, the term **risk** as used in investments refers to adverse circumstances affecting the investor's position. Risk can be defined in several different ways. **Risk** is defined here as the chance that the actual return on an investment will differ from its expected return.

Beginning students will probably think of default risk and purchasing power risk very quickly. Some may be aware of *interest rate risk* and *market risk* without fully understanding these concepts (which are explained in later chapters). Other risks include *political risk* and *liquidity risk*. Students may also remember *financial risk* and business risk from their managerial finance course.

1-11. As explained in Chapter 21, return and risk form the basis for investors establishing their objectives. Some investors think of risk as a constraint on their activities. If so, risk is the most important constraint. Investors face other constraints, including:

- time
- taxes
- transaction costs
- income requirements
- legal and regulatory constraints
- diversification requirements

1-12. All *rational* investors are risk averse because it is not rational when investing to assume risk unless one expects to be compensated for doing so.

All investors do not have the same degree of risk aversion. They are risk averse to varying degrees, requiring different risk premiums in order to invest.

1-13. Investors should determine how much risk they are willing to take before investing—this is their **risk tolerance**. Based on their risk tolerance, investors can then decide how to invest. Investors may seek to maximize their expected return consistent with the amount of risk they are willing to take.

1-14. The external factors affecting the decision process are:

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(1) uncertainty—the great unknown
(2) the global investments arena
(3) the importance of the internet
(4) individual investors vs. institutional investors

The most important factor is uncertainty, the ever-present issue with which all investors must deal. Uncertainty dominates investments, and always will.

1-15. **Institutional investors** include bank trust departments, pension funds, mutual funds (investment companies), insurance companies, and so forth. Basically, these financial institutions own and manage portfolios of securities on behalf of various clienteles.

They affect the investing environment (and therefore individual investors) through their actions in the marketplace, buying and selling securities in large dollar amounts. However, although they appear to have several advantages over individuals (research departments, expertise, etc.), reasonably informed individuals should be able to perform as well as institutions, on average, over time. This relates to the issue of market efficiency.

1-16. Required rates of return differ as the risk of an investment varies. Treasury bonds, generally accepted as being free from default risk, are less risky than corporates, and therefore have a lower required rate of return.

1-17. Investors should be concerned with international investing for several important reasons. First, international investing offers diversification opportunities, and diversification is extremely important to all investors as it provides risk reduction. Second, the returns may be better in foreign markets than in the U.S. markets. Third, many U.S. companies are increasingly affected by conditions abroad--for example, Coca Cola derives most of its revenue and profits from foreign operations. U.S. companies clearly are significantly affected by foreign competitors.

The exchange rate (currency risk) is an important part of all decisions to invest internationally. As discussed in Chapter 6 and other chapters, currency risk affects investment returns, both positively and negatively.

1-18. The long run ex ante tradeoff between expected return and risk should be an upward sloping line indicating that the greater the risk taken, the greater the expected return.

The long run ex post tradeoff between return and risk should also be upward sloping if investing is to make sense. Over long periods, riskier assets should return more than less risky assets.

1-19. Disagree. If investors always attempted to minimize their risk, they would only invest in Treasury securities. Instead, investors seek a balance between expected return and risk.

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1-20. Disagree. If investors sought only to maximize their returns, they would purchase the riskiest assets, ignoring the risk they would be taking. Once again, investors must seek a balance between expected return and risk.

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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, **these 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 in order for 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 in 2009 because of the financial crisis.

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 briefly, primarily because these assets typically are owned by individual investors in the form of money market mutual funds.

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 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.

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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
[discussion of important money market securities in table form; emphasis on Treasury bills as a riskless asset; calculating the discount yield]

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

Government Agency Securities

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

Rates on Fixed-Income Securities
[general relationships]

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Equity Securities

Preferred Stock
[definition; characteristics; new forms]

Common Stock
[definition; characteristics-book value, market value, dividends, dividend yield, payout ratio, stock dividends and stock splits, the P/E ratio; investing internationally in equities]

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; very brief basics of puts and calls]

Futures Contracts
[definition; purposes]

A Final Note

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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. THE IMPORTANT POINT TO STRESS IS THAT 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.

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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 the 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 are the most risky. 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.

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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

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, less risky 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.

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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. 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. Direct Access Notes (DANs) are sold by high credit-quality firms at $1,000, thereby eliminating discounts and premiums and accrued interest. Coupon rates are fixed, and maturities vary widely. Maturities and rates on a new issue are posted for one week, allowing investors to shop around.

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.

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2-23. The $3.20 dividend is the annual dividend. The stock goes ex-dividend on August 11. An investor must buy the stock on or before August 10 to receive the dividend.

With 150 shares, 150 ($.80) = $120 will be received (the quarterly dividend is 1/4 of $3.20, or $.80).

2-24. (b)—ratings reflect the relative likelihood of default.

2-25. (a)

2-26. (d)—stockholders receive what is left over after the fixed claimants have been paid.

2-27. Agree. A marginal tax rate is assumed for the municipal. The TEY must be calculated to put the municipal bond yield on a before tax basis, making it comparable to other bond yields.

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ANSWERS TO END-OF-CHAPTER PROBLEMS

2-1. Taxable equivalent yield = $\frac{\text{tax-exempt municipal yield}}{\text{1.0 - marginal tax rate}}$

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

Taxable equivalent yield = .055 / [1-.15]
= 6%

2-2. According to the problem, the corporate bond yields 8.4 (1-.28) = 6.05 percent after tax.

The municipal bond has a taxable equivalent yield of .06 / [1 - .28] = 8.33 percent

2-3. First, calculate the **effective state rate** as:

Marginal state rate x (1 – marginal federal rate)

.07 x (1 - .28) = 5.04%

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

Combined rate = effective state rate + federal rate

= .0504 + .28 = .3304

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

Combined TEY = .06 / (1 - .3304) = .0896 or 8.96%

CFA

2-4. 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 ¼%	7.25%	Below par
b.	B	6 5/8 %	7.15%	Below par
c.	C	0%	6.20%	Below par
d.	D	5 7/8%	5.00%	Above par
e.	E	4 ½%	4.50%	Par