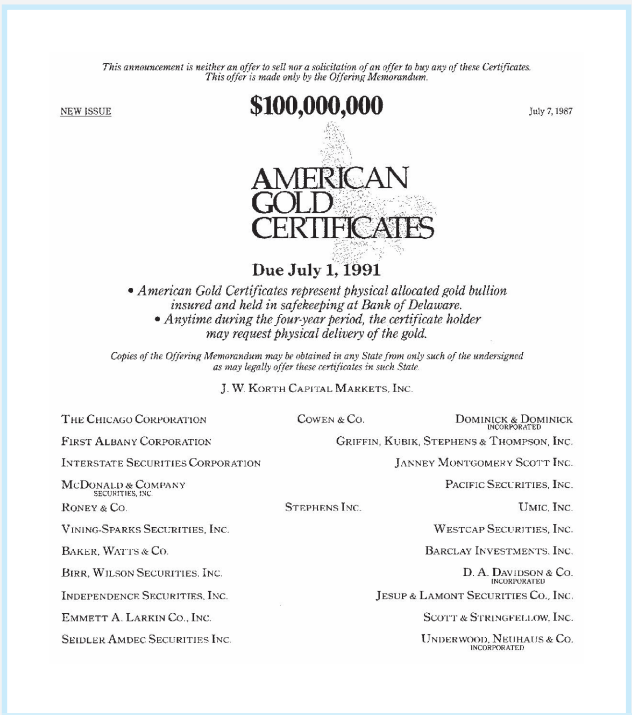
4. Although we stated that real assets comprise the true productive capacity of an economy, it is hard to conceive of a modern economy without well-developed financial markets and security types. How would the productive capacity of the U.S. economy be affected if there were no markets in which one could trade financial assets?
5. Firms raise capital from investors by issuing shares in the primary markets. Does this imply that corporate financial managers can ignore trading of previously issued shares in the secondary market?

ii. Intermediate

6. Suppose housing prices across the world double.
   a. Is society any richer for the change?
   b. Are homeowners wealthier?
   c. Can you reconcile your answers to (*a*) and (*b*)? Is anyone worse off as a result of the change?
7. Lanni Products is a start-up computer software development firm. It currently owns computer equipment worth $30,000 and has cash on hand of $20,000 contributed by Lanni's owners. For each of the following transactions, identify the real and/or financial assets that trade hands. Are any financial assets created or destroyed in the transaction?
   a. Lanni takes out a bank loan. It receives $50,000 in cash and signs a note promising to pay back the loan over 3 years.
   b. Lanni uses the cash from the bank plus $20,000 of its own funds to finance the development of new financial planning software.
   c. Lanni sells the software product to Microsoft, which will market it to the public under the Microsoft name. Lanni accepts payment in the form of 1,500 shares of Microsoft stock.
   d. Lanni sells the shares of stock for $80 per share and uses part of the proceeds to pay off the bank loan.
8. Reconsider Lanni Products from the previous problem.
   a. Prepare its balance sheet just after it gets the bank loan. What is the ratio of real assets to total assets?
   b. Prepare the balance sheet after Lanni spends the $70,000 to develop its software product. What is the ratio of real assets to total assets?
   c. Prepare the balance sheet after Lanni accepts the payment of shares from Microsoft. What is the ratio of real assets to total assets?
9. Examine the balance sheet of commercial banks in Table 1.3. What is the ratio of real assets to total assets? What is that ratio for nonfinancial firms (Table 1.4)? Why should this difference be expected?
10. Consider Figure 1.5, which describes an issue of American gold certificates.
    a. Is this issue a primary or secondary market transaction?
    b. Are the certificates primitive or derivative assets?
    c. What market niche is filled by this offering?
11. Discuss the advantages and disadvantages of the following forms of managerial compensation in terms of mitigating agency problems, that is, potential conflicts of interest between managers and shareholders.
    a. A fixed salary.
    b. Stock in the firm that must be held for five years.
    c. A salary linked to the firm's profits.



This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Certificates. This offer is made only by the Offering Memorandum.

NEW ISSUE

$100,000,000

July 7, 1987

AMERICAN GOLD CERTIFICATES

Due July 1, 1991

- *American Gold Certificates represent physical allocated gold bullion insured and held in safekeeping at Bank of Delaware.*
- *Anytime during the four-year period, the certificate holder may request physical delivery of the gold.*

Copies of the Offering Memorandum may be obtained in any State from only such of the undersigned as may legally offer these certificates in such State.

J. W. KORTH CAPITAL MARKETS, INC.

THE CHICAGO CORPORATION	COWEN & CO.	DOMINICK & DOMINICK INCORPORATED
FIRST ALBANY CORPORATION		GRIFFIN, KUBIK, STEPHENS & THOMPSON, INC.
INTERSTATE SECURITIES CORPORATION		JANNEY MONTGOMERY SCOTT INC.
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SEIDLER AMDEC SECURITIES INC.		UNDERWOOD, NEUHAUS & CO. INCORPORATED

Figure 1.5 A gold-backed security

12. We noted that oversight by large institutional investors or creditors is one mechanism to reduce agency problems. Why don't individual investors in the firm have the same incentive to keep an eye on management?
13. Give an example of three financial intermediaries and explain how they act as a bridge between small investors and large capital markets or corporations.
14. The average rate of return on investments in large stocks has outpaced that on investments in Treasury bills by about 7% since 1926. Why, then, does anyone invest in Treasury bills?
15. What are some advantages and disadvantages of top-down versus bottom-up investing styles?
16. You see an advertisement for a book that claims to show how you can make $1 million with no risk and with no money down. Will you buy the book?
17. Why do financial assets show up as a component of household wealth, but not of national wealth? Why do financial assets still matter for the material well-being of an economy?
18. Wall Street firms have traditionally compensated their traders with a share of the trading profits that they generated. How might this practice have affected traders' willingness to assume risk? What is the agency problem this practice engendered?
19. What reforms to the financial system might reduce its exposure to systemic risk?

E-INVESTMENTS EXERCISES

Market Regulators

1. Go to the Securities and Exchange Commission Web site, **www.sec.gov**. What is the mission of the SEC? What information and advice does the SEC offer to beginning investors?
2. Go to the NASD Web site, **www.finra.org** What is its mission? What information and advice does it offer to beginners?
3. Go to the IOSCO Web site, **www.iosco.org**. What is its mission? What information and advice does it offer to beginners?

SOLUTIONS TO CONCEPT CHECKS

1. *a.* Real
   b. Financial
   c. Real
   d. Real
   e. Financial
2. The central issue is the incentive to monitor the quality of loans when originated as well as over time. Freddie and Fannie clearly had incentive to monitor the quality of conforming loans that they had guaranteed, and their ongoing relationships with mortgage originators gave them opportunities to evaluate track records over extended periods of time. In the subprime mortgage market, the ultimate investors in the securities (or the CDOs backed by those securities), who were bearing the credit risk, should not have been willing to invest in loans with a disproportionate likelihood of default. If they properly understood their exposure to default risk, then the (correspondingly low) prices they would have been willing to pay for these securities would have imposed discipline on the mortgage originators and servicers. The fact that they were willing to hold such large positions in these risky securities suggests that they did not appreciate the extent

PROBLEM SETS

i. Basic

1. In what ways is preferred stock like long-term debt? In what ways is it like equity?
2. Why are money market securities sometimes referred to as "cash equivalents"?
3. Which of the following **correctly** describes a repurchase agreement?
   a. The sale of a security with a commitment to repurchase the same security at a specified future date and a designated price.
   b. The sale of a security with a commitment to repurchase the same security at a future date left unspecified, at a designated price.
   c. The purchase of a security with a commitment to purchase more of the same security at a specified future date.
4. What would you expect to happen to the spread between yields on commercial paper and Treasury bills if the economy were to enter a steep recession?
5. What are the key differences between common stock, preferred stock, and corporate bonds?
6. Why are high-tax-bracket investors more inclined to invest in municipal bonds than low-bracket investors?

ii. Intermediate

7. Turn back to Figure 2.3 and look at the Treasury bond maturing in February 2039.
   a. How much would you have to pay to purchase one of these notes?
   b. What is its coupon rate?
   c. What is the current yield of the note?
8. Suppose investors can earn a return of 2% per 6 months on a Treasury note with 6 months remaining until maturity. What price would you expect a 6-month maturity Treasury bill to sell for?
9. Find the after-tax return to a corporation that buys a share of preferred stock at $40, sells it at year-end at $40, and receives a $4 year-end dividend. The firm is in the 30% tax bracket.
10. Turn to Figure 2.8 and look at the listing for General Dynamics.
    a. How many shares could you buy for $5,000?
    b. What would be your annual dividend income from those shares?
    c. What must be General Dynamics earnings per share?
    d. What was the firm's closing price on the day before the listing?
11. Consider the three stocks in the following table. P_t represents price at time t, and Q_t represents shares outstanding at time t. Stock C splits two for one in the last period.

	P_0	Q_0	P_1	Q_1	P_2	Q_2
A	90	100	95	100	95	100
B	50	200	45	200	45	200
C	100	200	110	200	55	400

    a. Calculate the rate of return on a price-weighted index of the three stocks for the first period ($t = 0$ to $t = 1$).
    b. What must happen to the divisor for the price-weighted index in year 2?
    c. Calculate the rate of return for the second period ($t = 1$ to $t = 2$).
12. Using the data in the previous problem, calculate the first-period rates of return on the following indexes of the three stocks:
    a. A market-value-weighted index.
    b. An equally weighted index.
13. An investor is in a 30% tax bracket. If corporate bonds offer 9% yields, what must municipals offer for the investor to prefer them to corporate bonds?

14. Find the equivalent taxable yield of a short-term municipal bond currently offering yields of 4% for tax brackets of zero, 10%, 20%, and 30%.
15. What problems would confront a mutual fund trying to create an index fund tied to an equally weighted index of a broad stock market?
16. Which security should sell at a greater price?
    a. A 10-year Treasury bond with a 9% coupon rate versus a 10-year T-bond with a 10% coupon.
    b. A 3-month expiration call option with an exercise price of $40 versus a 3-month call on the same stock with an exercise price of $35.
    c. A put option on a stock selling at $50, or a put option on another stock selling at $60 (all other relevant features of the stocks and options may be assumed to be identical).
17. Look at the futures listings for the corn contract in Figure 2.10.
    a. Suppose you buy one contract for March delivery. If the contract closes in March at a level of 3.875, what will your profit be?
    b. How many March maturity contracts are outstanding?
18. Turn back to Figure 2.9 and look at the Intel options. Suppose you buy a November expiration call option with exercise price $21.
    a. Suppose the stock price in November is $21.75 Will you exercise your call? What is the profit on your position?
    b. What if you had bought the November call with exercise price $22?
    c. What if you had bought a November put with exercise price $22?
19. Why do call options with exercise prices greater than the price of the underlying stock sell for positive prices?
20. Both a call and a put currently are traded on stock XYZ; both have strike prices of $50 and expirations of 6 months. What will be the profit to an investor who buys the call for $4 in the following scenarios for stock prices in 6 months? What will be the profit in each scenario to an investor who buys the put for $6?
    a. $40
    b. $45
    c. $50
    d. $55
    e. $60

iii. Challenge

21. Explain the difference between a put option and a short position in a futures contract.
22. Explain the difference between a call option and a long position in a futures contract.

CFA® PROBLEMS

1. A firm's preferred stock often sells at yields below its bonds because
    a. Preferred stock generally carries a higher agency rating.
    b. Owners of preferred stock have a prior claim on the firm's earnings.
    c. Owners of preferred stock have a prior claim on a firm's assets in the event of liquidation.
    d. Corporations owning stock may exclude from income taxes most of the dividend income they receive.
2. A municipal bond carries a coupon of 6¾% and is trading at par. What is the equivalent taxable yield to a taxpayer in a combined federal plus state 34% tax bracket?
3. Which is the *most risky* transaction to undertake in the stock index option markets if the stock market is expected to increase substantially after the transaction is completed?
    a. Write a call option.
    b. Write a put option.
    c. Buy a call option.
    d. Buy a put option.

5. Trading costs include explicit commissions as well as the bid–ask spread. An ongoing controversy among markets concerns overall trading costs including the effect of spreads and price impact. The NYSE argues that it is often the cheapest trading venue when quality of execution is recognized.
6. Buying on margin means borrowing money from a broker to buy more securities than can be purchased with one's own money alone. By buying securities on a margin, an investor magnifies both the upside potential and the downside risk. If the equity in a margin account falls below the required maintenance level, the investor will get a margin call from the broker.
7. Short-selling is the practice of selling securities that the seller does not own. The short-seller borrows the securities sold through a broker and may be required to cover the short position at any time on demand. The cash proceeds of a short sale are kept in escrow by the broker, and the broker usually requires that the short-seller deposit additional cash or securities to serve as margin (collateral).
8. Securities trading is regulated by the Securities and Exchange Commission, by other government agencies, and through self-regulation of the exchanges. Many of the important regulations have to do with full disclosure of relevant information concerning the securities in question. Insider trading rules also prohibit traders from attempting to profit from inside information.

Related Web sites for this chapter are available at **www.mhhe.com/bkm**

KEY TERMS

primary market
secondary market
initial public offerings (IPOs)
underwriters
prospectus
private placement
dealer markets
auction market
bid price
ask price
bid–ask spread
limit order
stop orders
over-the-counter (OTC) market
electronic communication networks (ECNs)
specialist
NASDAQ
stock exchanges
block transactions
program trade
margin
short sale
inside information

PROBLEM SETS

i. Basic

1. Call one full-service broker and one discount broker and find out the transaction costs of implementing the following strategies:
   a. Buying 100 shares of IBM now and selling them 6 months from now.
   b. Investing an equivalent amount in 6-month at-the-money call options on IBM stock now and selling them 6 months from now.
2. Who sets the bid and asked price for a stock traded over the counter? Would you expect the spread to be higher on actively or inactively traded stocks?
3. Suppose you short sell 100 shares of IBM, now selling at $120 per share.
   a. What is your maximum possible loss?
   b. What happens to the maximum loss if you simultaneously place a stop-buy order at $128?
4. A market order has:
   a. Price uncertainty but not execution uncertainty.
   b. Both price uncertainty and execution uncertainty.
   c. Execution uncertainty but not price uncertainty.
5. Where would an illiquid security in a developing country *most likely* trade?
   a. Broker markets.
   b. Electronic crossing networks.
   c. Electronic limit-order markets.

ii. Intermediate

6. Dée Trader opens a brokerage account and purchases 300 shares of Internet Dreams at $40 per share. She borrows $4,000 from her broker to help pay for the purchase. The interest rate on the loan is 8%.
   a. What is the margin in Dée's account when she first purchases the stock?
   b. If the share price falls to $30 per share by the end of the year, what is the remaining margin in her account? If the maintenance margin requirement is 30%, will she receive a margin call?
   c. What is the rate of return on her investment?

7. Old Economy Traders opened an account to short sell 1,000 shares of Internet Dreams from the previous problem. The initial margin requirement was 50%. (The margin account pays no interest.) A year later, the price of Internet Dreams has risen from $40 to $50, and the stock has paid a dividend of $2 per share.
   a. What is the remaining margin in the account?
   b. If the maintenance margin requirement is 30%, will Old Economy receive a margin call?
   c. What is the rate of return on the investment?
8. Consider the following limit-order book of a specialist. The last trade in the stock occurred at a price of $50.

Limit Buy Orders		Limit Sell Orders	
Price	**Shares**	**Price**	**Shares**
$49.75	500	$50.25	100
49.50	800	51.50	100
49.25	500	54.75	300
49.00	200	58.25	100
48.50	600		

   a. If a market buy order for 100 shares comes in, at what price will it be filled?
   b. At what price would the next market buy order be filled?
   c. If you were the specialist, would you want to increase or decrease your inventory of this stock?

9. You are bullish on Telecom stock. The current market price is $50 per share, and you have $5,000 of your own to invest. You borrow an additional $5,000 from your broker at an interest rate of 8% per year and invest $10,000 in the stock.
   a. What will be your rate of return if the price of Telecom stock goes up by 10% during the next year? The stock currently pays no dividends.
   b. How far does the price of Telecom stock have to fall for you to get a margin call if the maintenance margin is 30%? Assume the price fall happens immediately.

10. You are bearish on Telecom and decide to sell short 100 shares at the current market price of $50 per share.
    a. How much in cash or securities must you put into your brokerage account if the broker's initial margin requirement is 50% of the value of the short position?
    b. How high can the price of the stock go before you get a margin call if the maintenance margin is 30% of the value of the short position?

11. Suppose that Intel currently is selling at $40 per share. You buy 500 shares using $15,000 of your own money, borrowing the remainder of the purchase price from your broker. The rate on the margin loan is 8%.
    a. What is the percentage increase in the net worth of your brokerage account if the price of Intel *immediately* changes to: (i) $44; (ii) $40; (iii) $36? What is the relationship between your percentage return and the percentage change in the price of Intel?
    b. If the maintenance margin is 25%, how low can Intel's price fall before you get a margin call?
    c. How would your answer to (*b*) change if you had financed the initial purchase with only $10,000 of your own money?
    d. What is the rate of return on your margined position (assuming again that you invest $15,000 of your own money) if Intel is selling *after 1 year* at: (i) $44; (ii) $40; (iii) $36? What is the relationship between your percentage return and the percentage change in the price of Intel? Assume that Intel pays no dividends.
    e. Continue to assume that a year has passed. How low can Intel's price fall before you get a margin call?

excel
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12. Suppose that you sell short 500 shares of Intel, currently selling for $40 per share, and give your broker $15,000 to establish your margin account.
    a. If you earn no interest on the funds in your margin account, what will be your rate of return after 1 year if Intel stock is selling at: (i) $44; (ii) $40; (iii) $36? Assume that Intel pays no dividends.
    b. If the maintenance margin is 25%, how high can Intel's price rise before you get a margin call?
    c. Redo parts (*a*) and (*b*), but now assume that Intel also has paid a year-end dividend of $1 per share. The prices in part (*a*) should be interpreted as ex-dividend, that is, prices after the dividend has been paid.
13. Here is some price information on Marriott:

	Bid	Asked
Marriott	19.95	20.05

    You have placed a stop-loss order to sell at $20. What are you telling your broker? Given market prices, will your order be executed?
14. Here is some price information on Fincorp stock. Suppose that Fincorp trades in a dealer market.

Bid	Asked
55.25	55.50

    a. Suppose you have submitted an order to your broker to buy at market. At what price will your trade be executed?
    b. Suppose you have submitted an order to sell at market. At what price will your trade be executed?
    c. Suppose you have submitted a limit order to sell at $55.62. What will happen?
    d. Suppose you have submitted a limit order to buy at $55.37. What will happen?
15. Now reconsider the previous problem assuming that Fincorp sells in an exchange market like the NYSE.
    a. Is there any chance for the market buy order considered in part (*a*) to be executed at a price below $55.50, and the sell order in part (*b*) at a price above $55.25?
    b. Is there any chance of an immediate trade at $55.37 for the limit-buy order in part (*d*)?
16. You've borrowed $20,000 on margin to buy shares in Disney, which is now selling at $40 per share. Your account starts at the initial margin requirement of 50%. The maintenance margin is 35%. Two days later, the stock price falls to $35 per share.
    a. Will you receive a margin call?
    b. How low can the price of Disney shares fall before you receive a margin call?
17. On January 1, you sold short one round lot (that is, 100 shares) of Lowes stock at $21 per share. On March 1, a dividend of $2 per share was paid. On April 1, you covered the short sale by buying the stock at a price of $15 per share. You paid 50 cents per share in commissions for each transaction. What is the value of your account on April 1?

CFA® PROBLEMS

1. FBN, Inc., has just sold 100,000 shares in an initial public offering. The underwriter's explicit fees were $70,000. The offering price for the shares was $50, but immediately upon issue, the share price jumped to $53.
    a. What is your best guess as to the total cost to FBN of the equity issue?
    b. Is the entire cost of the underwriting a source of profit to the underwriters?

2. If you place a stop-loss order to sell 100 shares of stock at $55 when the current price is $62, how much will you receive for each share if the price drops to $50?
   a. $50.
   b. $55.
   c. $54.87.
   d. Cannot tell from the information given.
3. Specialists on the New York Stock Exchange do all of the following *except:*
   a. Act as dealers for their own accounts.
   b. Execute limit orders.
   c. Help provide liquidity to the marketplace.
   d. Act as odd-lot dealers.

E-INVESTMENTS EXERCISES

Stock Market Listing Standards

Each exchange sets different criteria that must be satisfied for a stock to be listed there. The NYSE refers to their requirements as "Listing Standards." NASDAQ refers to the requirements as "Listing Qualifications." Listing requirements for these markets can be found at **www.nyse.com** and **www.nasdaq.com**. Find the listing requirements for firms with securities traded on each exchange. The NYSE also provides "continued listing standards." What are those requirements? Using the security search engine on either the NYSE or NASDAQ, search for stocks that do not meet the continued listing standards of the NYSE. Which variables would lead to the stock being delisted from the NYSE? What do you think is the likelihood that this stock will continue to be listed on the NYSE?

SOLUTIONS TO CONCEPT CHECKS

1. Limited-time shelf registration was introduced because its cost savings outweighed the disadvantage of slightly less up-to-date disclosures. Allowing unlimited shelf registration would circumvent "blue sky" laws that ensure proper disclosure as the financial circumstances of the firm change over time.
2. *a.* Used cars trade in dealer markets (used-car lots or auto dealerships) and in direct search markets when individuals advertise in local newspapers or on the Web.
   b. Paintings trade in broker markets when clients commission brokers to buy or sell art for them, in dealer markets at art galleries, and in auction markets.
   c. Rare coins trade mostly in dealer markets in coin shops, but they also trade in auctions and in direct search markets when individuals advertise they want to buy or sell coins.
3. *a.* You should give your broker a market order. It will be executed immediately and is the cheapest type of order in terms of brokerage fees.
   b. You should give your broker a limit-buy order, which will be executed only if the shares can be obtained at a price about 5% below the current price.
   c. You should give your broker a stop-loss order, which will be executed if the share price starts falling. The limit or stop price should be close to the current price to avoid the possibility of large losses.
4. Solving
$$\frac{100P - \$4{,}000}{100P} = .4$$
yields $P = \$66.67$ per share.

KEY TERMS

nominal interest rate
real interest rate
effective annual rate (EAR)
annual percentage rate (APR)
dividend yield
risk-free rate
risk premium
excess return
risk aversion
normal distribution
event tree
skew
kurtosis
value at risk (VaR)
expected shortfall (ES)
conditional tail expectation (CTE)
lower partial standard deviation (LPSD)
Sortino ratio
lognormal distribution

PROBLEM SETS

i. Basic

1. The Fisher equation tells us that the real interest rate approximately equals the nominal rate minus the inflation rate. Suppose the inflation rate increases from 3% to 5%. Does the Fisher equation imply that this increase will result in a fall in the real rate of interest? Explain.
2. You've just stumbled on a new dataset that enables you to compute historical rates of return on U.S. stocks all the way back to 1880. What are the advantages and disadvantages in using these data to help estimate the expected rate of return on U.S. stocks over the coming year?
3. You are considering two alternative 2-year investments: You can invest in a risky asset with a positive risk premium and returns in each of the 2 years that will be identically distributed and uncorrelated, or you can invest in the risky asset for only 1 year and then invest the proceeds in a risk-free asset. Which of the following statements about the first investment alternative (compared with the second) are true?
   a. Its 2-year risk premium is the same as the second alternative.
   b. The standard deviation of its 2-year return is the same.
   c. Its annualized standard deviation is lower.
   d. Its Sharpe ratio is higher.
   e. It is relatively more attractive to investors who have lower degrees of risk aversion.

ii. Intermediate

4. You have $5,000 to invest for the next year and are considering three alternatives:
   a. A money market fund with an average maturity of 30 days offering a current yield of 6% per year.
   b. A 1-year savings deposit at a bank offering an interest rate of 7.5%.
   c. A 20-year U.S. Treasury bond offering a yield to maturity of 9% per year.

   What role does your forecast of future interest rates play in your decisions?
5. Use Figure 5.1 in the text to analyze the effect of the following on the level of real interest rates:
   a. Businesses become more pessimistic about future demand for their products and decide to reduce their capital spending.
   b. Households are induced to save more because of increased uncertainty about their future Social Security benefits.
   c. The Federal Reserve Board undertakes open-market purchases of U.S. Treasury securities in order to increase the supply of money.
6. You are considering the choice between investing $50,000 in a conventional 1-year bank CD offering an interest rate of 5% and a 1-year "Inflation-Plus" CD offering 1.5% per year plus the rate of inflation.
   a. Which is the safer investment?
   b. Which offers the higher expected return?
   c. If you expect the rate of inflation to be 3% over the next year, which is the better investment? Why?
   d. If we observe a risk-free nominal interest rate of 5% per year and a risk-free real rate of 1.5% on inflation-indexed bonds, can we infer that the market's expected rate of inflation is 3.5% per year?

7. Suppose your expectations regarding the stock price are as follows:

State of the Market	Probability	Ending Price	HPR (including dividends)
Boom	.35	$140	44.5%
Normal growth	.30	110	14.0
Recession	.35	80	−16.5

Use Equations 5.11 and 5.12 to compute the mean and standard deviation of the HPR on stocks.

8. Derive the probability distribution of the 1-year HPR on a 30-year U.S. Treasury bond with an 8% coupon if it is currently selling at par and the probability distribution of its yield to maturity a year from now is as follows:

State of the Economy	Probability	YTM
Boom	.20	11.0%
Normal growth	.50	8.0
Recession	.30	7.0

For simplicity, assume the entire 8% coupon is paid at the end of the year rather than every 6 months.

9. What is the standard deviation of a random variable q with the following probability distribution:

Value of q	Probability
0	.25
1	.25
2	.50

10. The continuously compounded annual return on a stock is normally distributed with a mean of 20% and standard deviation of 30%. With 95.44% confidence, we should expect its actual return in any particular year to be between which pair of values? *Hint:* Look again at Figure 5.4.

a. −40.0% and 80.0%
b. −30.0% and 80.0%
c. −20.6% and 60.6%
d. −10.4% and 50.4%

11. Using historical risk premiums over the 1926–2009 period as your guide, what would be your estimate of the expected annual HPR on the S&P 500 stock portfolio if the current risk-free interest rate is 3%?

12. You can find annual holding-period returns for several asset classes at our Web site (**www.mhhe.com/bkm**); look for links to Chapter 5. Compute the means, standard deviations, skewness, and kurtosis of the annual HPR of large stocks and long-term Treasury bonds using only the 30 years of data between 1980 and 2009. How do these statistics compare with those computed from the data for the period 1926–1941? Which do you think are the most relevant statistics to use for projecting into the future?

13. During a period of severe inflation, a bond offered a nominal HPR of 80% per year. The inflation rate was 70% per year.

a. What was the real HPR on the bond over the year?
b. Compare this real HPR to the approximation $r \approx R - i$.

14. Suppose that the inflation rate is expected to be 3% in the near future. Using the historical data provided in this chapter, what would be your predictions for:

a. The T-bill rate?
b. The expected rate of return on large stocks?
c. The risk premium on the stock market?

15. An economy is making a rapid recovery from steep recession, and businesses foresee a need for large amounts of capital investment. Why would this development affect real interest rates?

Challenge Problems 16 and 17 are more difficult. You may need to review the definitions of call and put options in Chapter 2.

iii. Challenge

16. You are faced with the probability distribution of the HPR on the stock market index fund given in Spreadsheet 5.1 of the text. Suppose the price of a put option on a share of the index fund with exercise price of $110 and time to expiration of 1 year is $12.
    a. What is the probability distribution of the HPR on the put option?
    b. What is the probability distribution of the HPR on a portfolio consisting of one share of the index fund and a put option?
    c. In what sense does buying the put option constitute a purchase of insurance in this case?
17. Take as given the conditions described in the previous problem, and suppose the risk-free interest rate is 6% per year. You are contemplating investing $107.55 in a 1-year CD and simultaneously buying a call option on the stock market index fund with an exercise price of $110 and expiration of 1 year. What is the probability distribution of your dollar return at the end of the year?

CFA® PROBLEMS

1. Given $100,000 to invest, what is the expected risk premium in dollars of investing in equities versus risk-free T-bills (U.S. Treasury bills) based on the following table?

Action	Probability	Expected Return
Invest in equities	.6	$50,000
	.4	−$30,000
Invest in risk-free T-bill	1.0	$ 5,000

2. Based on the scenarios below, what is the expected return for a portfolio with the following return profile?

	Market Condition		
	Bear	Normal	Bull
Probability	.2	.3	.5
Rate of return	−25%	10%	24%

Use the following scenario analysis for Stocks X and Y to answer CFA Problems 3 through 6 (round to the nearest percent).

	Bear Market	Normal Market	Bull Market
Probability	0.2	0.5	0.3
Stock X	−20%	18%	50%
Stock Y	−15%	20%	10%

3. What are the expected rates of return for Stocks X and Y?
4. What are the standard deviations of returns on Stocks X and Y?
5. Assume that of your $10,000 portfolio, you invest $9,000 in Stock X and $1,000 in Stock Y. What is the expected return on your portfolio?