Fundamentals of Investments, **Third Edition**

1. Issuers receive the net proceeds of securities sales when their securities are initially sold in the primary market. These securities represent claims on the issuing entities. For publicly-traded securities, these claims can be transferred through sales of the securities. This trading among investors takes place in the secondary markets, where the issuers have no direct involvement. When an investor sells his or her shares of a particular security in the secondary market, the issuer has no means or right to receive any additional funds as a result of the trade.

2. The return on an investment, as shown in Equation (1.1) in the text, is given by:

$$ROR = \frac{Ending\ Wealth - Beginning\ Wealth}{Beginning\ Wealth}$$

   In the case of Colfax stock:

   ROR = ($36 + $3 - $33)/($33)

   =   .182 = 18.2%

3. Using the formula for the return on an investment shown above, in the case of Ray's portfolio:

   a. ($25,000 - $20,000 + $1,000)/($20,000) = .300 = 30.0%

   b. ($23,000 - $30,000 + $3,000)/($30,000) = -.133 = -13.3%

   c. ($48,000 - $50,000 + $4,000)/($50,000) = .040 = 4.0%

4. Because the U.S. Treasury guarantees the payment of interest and principal on Treasury bills, an investor can be certain of the return that he or she will earn on a Treasury bill investment. The government has the unlimited authority to tax and print money to repay its debts. Therefore its ability to make these promised payments is unquestioned.

   This certain Treasury bill return, however, does not account for the effects of inflation. Although the short maturity of Treasury bills makes this issue relatively unimportant, if inflation rose sharply and unexpectedly during the time that an investor held Treasury bills, he or she would not be compensated for the resulting lost purchasing power.

5. The average annual return on small stocks during 1976-1995 was
    21.24%. The standard deviation of small stock returns during
    this period was 19.94%.

    The average annual return on common stocks during 1976-1995
    was 15.35%. The standard deviation of common stock returns
    during this period was 13.63%.

6. If one assumes that investors dislike risk (a reasonable
    assumption and one that is discussed later in the text), then
    higher-risk securities should exhibit higher returns over long
    periods of time. If this relationship did not exist, and
    higher-risk securities offered the same returns as lower-risk
    securities, then investors could not be induced to hold these
    riskier securities. They could avoid additional risk and
    receive the same return by holding the lower-risk securities.
    Such a situation could not be an equilibrium. Prices of
    higher-risk securities would have to adjust to provide
    investors with higher returns and therefore increase
    investors' willingness to hold these securities.

7. Examples of non-financial market risk-return trade-offs
    include: asking the boss for a raise, underreporting income to
    the IRS, and self-insuring against damage to your home.

8. The statement in the text citing a positive relationship
    between risk and return is made in the expectational sense.
    That is, higher-risk securities are expected to produce
    returns greater than lower-risk securities. On the other
    hand, the data contained in Table 1.1 illustrates historical,
    single period results. Various factors may have intervened to
    cause lower-risk securities to outperform the higher-risk
    securities in any given year.

9. The worst single year for common stock investors was 1931,
    when they experienced a total return of -43.44%. In the
    1970s, the worst year for common stock investors was 1974,
    when they experienced a total return of -26.36%. However,
    accounting for inflation, the real return (nominal return less
    the inflation rate) on common stocks in 1974 was -38.70%,
    while the real return on common stocks in 1931 was –34.12%.
    In fact, inflation rates were negative for several years
    during the Great Depression, while they were relatively high
    during the mid-1970s. As a result, in terms of total real
    returns, the market decline of the 1973-74 was as (or more)
    severe than the market decline of the Great Depression

10. Foreign security returns do not necessarily move in the same direction as returns on U.S. securities. For that reason, including them in a portfolio will tend to dampen the ups and downs of the portfolio's total returns. This effect is known as diversification and can significantly improve the risk performance of a portfolio. In addition, some investors contend that returns on foreign securities are generally higher than those on comparable U.S. securities. While this contention is controversial, an investor who believes it could increase both the expected risk and return performance of his or her portfolio by including foreign securities.

11. Life insurance companies receive cash from individuals in the form of premiums. In exchange, the insurance companies write policies promising to make payments in the event of the death of the insured individual. The proceeds from the policy sales are primarily invested in stocks, bonds, money market instruments, and real estate.

    Mutual funds receive cash from investors and, in exchange, issue shares in the respective funds. The proceeds from the funds' sales are invested in a wide variety of financial assets, with the specific assets depending on the funds' particular investment objectives.

    Pension funds receive employer (and sometimes employee) contributions and issue promises to pay retirement benefits in exchange. The contributions are primarily invested in stocks, bonds, and money market instruments.

12. The five steps to the investment process are:

    1. Investment policy
    2. Security analysis
    3. Portfolio construction
    4. Portfolio revision
    5. Portfolio performance evaluation

    Setting investment policy is important because it provides the general framework around which the investment process is conducted. It identifies the investor's risk tolerance and investment objectives. Security analysis is at the center of the investment process. It involves specifically identifying financial assets to be purchased for and sold from the investor's portfolio. Portfolio construction moves from

identifying the specific assets in the security analysis step to combining those assets into a portfolio consistent with the investor's investment objectives. Portfolio revision is necessary because investing is a dynamic process that responds to changes in investment opportunities and the investor's financial circumstances. Finally, portfolio performance evaluation is a feedback and control procedure intended to help the investor examine whether his or her investment program is meeting targeted objectives.

13. Because returns on financial assets are directly related to risk, establishing an investment objective of "making a lot of money," or equivalently, maximizing returns, might entail inordinate levels of risk. More appropriate would be an investment objective that jointly establishes desired levels of return and risk.

14. It is probably not advisable for an elderly person to hold a portfolio that includes no commons stocks. Common stocks have by far outperformed other asset classes historically. Moreover, compared to returns on bonds and money market investments, common stocks are the only asset class to historically produce a large premium over inflation. An elderly person must be concerned about maintaining the purchasing power of his or her investments. Given their historical performance, common stocks seem to be well-suited to helping maintain that purchasing power. Just what proportion of the portfolio should be held in common stocks is another matter.

15. Many factors could influence an investor's investment policy. Some obvious factors would include the investor's financial objectives (for example, saving for retirement or building a child's college fund), the investor's willingness to bear risk, the investor's current financial circumstances, and the investor's investment time horizon (partly a function of age and career status).

1. a. A market order instructs the broker to buy or sell immediately at the best available price. The investor is virtually assured that the order will be filled. However, the actual trade price could differ from the price existing when the order was placed.

    b. A limit order instructs the broker to buy or sell at a specified price (or better). The investor is assured that, if the trade takes place, then it will be done at a price at least as good as his or her limit price. However, the investor cannot be certain when, or even if, the order will eventually be filled.

    c. A stop order instructs the broker to buy or sell at the best available price once a stop price is reached. The investor can be fairly certain that his or her order will be filled if the stop price is reached. However, the actual trade price could differ from the stop price.

2. Lollypop's balance sheet at the time of the margin purchase would appear as follows:

Assets	Liabilities & Net Worth
Securities $75/shr × 200 shrs = $15,000	**Liabilties** Margin Loan (1–.55) × $75/shr × 200 shrs = $6,750 **Net Worth** $15,000 – $6,750 = $8,250

3. An investor's actual collateral is simply the market value of the investor's assets in the margin account. Thus for Buck:

    a. 200 shrs × $40/shr = $8,000

    b. 200 shrs × $60/shr = $12,000

    c. 200 shrs × $35/shr = $7,000

4. The minimum collateral required to avoid a margin call in the case of a margin purchase is given by:

    Minimum collateral = Loan/(1 – maintenance margin requirement)

    In Snooker's case:

Min collateral=[(1,000 shrs ×$60/shr) × (1 - .50)]/(1 - .70)

=$42,857.14

With the decline in price to $50/share, Snooker's actual collateral is now:

Collateral = 1,000 shrs × $50/shr = $50,000

Snooker's actual collateral is therefore above the minimum level necessary to avoid a margin call. No margin call will occur.

5. The maximum amount that Lizzie can purchase is found by solving:

    Initial Equity = Initial Margin Requirement × Purchase Amount

    or

    Max Purchase Amount = Initial Equity/Initial Margin Requirement

    = $15,000/.50 = $30,000

6. The maintenance margin requirement ensures that an investor maintains sufficient equity in his or her account to protect the broker against sudden shifts in the value of the investor's securities purchased on margin. Margin in the investor's account represents the excess of asset values over the value of the investor's loan. Therefore the greater the maintenance margin requirement, the greater is the broker's "cushion" against declines in the value of the investor's portfolio.

7. Penny's initial investment in South Beloit is $17,500 ($35 × 500) of which Penny put down $7,875 (.45 × $17,500). Over the course of the year Penny must pay interest of $1,155 (.12 × $9,625). At year-end Penny's investment is worth $20,000 ($40 × 500). Thus Penny's return on investment for the year is:

    ROR = [($20,000 - $17,500) - $1,155]/$7,875

    = .171 = 17.1%

8. Note that the return on an investor's margin purchase can be

expressed on a total dollar basis or on a per share basis. In the latter case:

$$ROR = \frac{P_{t+1} - P_t + D_t - [r \times (1 - im) \times P_t]}{(im \times P_t)}$$

In Ed Delahanty's case:

a. ROR = {($40 - $30 + $1) - [.13 × (1 - .55) × $30]}

     /(.55 × $30)

   = ($11 - $1.755)/$16.50 = .560 = 56.0%

b. ROR = {($20 - $30 + $1) - [.13 × (1 - .55) × $30]}

     /(.55 × $30)

   = ($-9 - $1.755)/$16.50 = -.652 = -65.2%

c. ROR = ($40 - $30 + $1)/$30

   = $11/$30 = .367 = 36.7%

   ROR = ($20 - $30 + $1)/$30

   = $-9/$30 = -.300 = -30.0%

9. Beauty's balance sheet at the time of the short sale would appear as follows:

Assets	**Liabilities & Net Worth**
Cash Proceeds of Sale $25/shr × 500 shrs = $12,500 Initial Margin .50 × $12,500 = $6,250	**Liabilities** Market Value of Short Sold Stock $25/shr × 500 shrs = $12,500
Total Assets $12,500 + $6,250 = $18,750	**Net Worth** $18,750 - $12,500 = $6,250

10. The equity (or net worth) in an investor's account who engages in short selling is given by:

    Equity = (*short sale proceeds* + *initial margin*) - *loan*

    Thus for Candy:

a. [(200 shrs × $50/shr) × (1 + .45)] − (200 shrs × $58/shr)

= $14,500 - $11,600 = $2,900

b. [(200 shrs × $50/shr) × (1 + .45)] − (200 shrs × $42/shr)

= $14,500 - $8,400 = $6,100

11. The minimum collateral required to avoid a margin call in the case of a short sale is given by:

Minimum collateral = Loan × (1 + maintenance margin requirement)

In Dinty's case, the minimum collateral is:

Min collateral = (500 shrs × $50/shr) × (1 + .35)

= $33,750

Dinty's actual collateral equals the short sale proceeds plus the initial margin or:

(500 shrs × $45/shr) × (1 + .55) = $34,875

Because the actual collateral exceeds the minimum collateral, Dinty will not receive a margin call at this time.

12. The first statement is true. The upside potential of any common stock is unbounded. Therefore, because a short seller's losses increase as the price of the short sold stock rises, the short seller's potential losses are infinite.

The second statement is false. It is true that if the initial margin requirement on short sales was 100%, then the maximum return that a short seller could earn would be 100%. (This would occur if the shorted stock's price went to zero.) However, given an initial margin requirement less than 100%, the leveraged position of a short sale potentially can produce returns in excess of 100%.

13. Calculated on a total dollar basis, Deerfoot's initial investment in the short sale of DeForest stock is $35,000 (.50 × $70 × 1,000). At year-end, Deerfoot had to reimburse the owner of the DeForest stock with $2,000 ($2 × 1,000) for dividends paid on the stock. Further, at year-end, if

Deerfoot purchased the stock and repaid the owner, then the excess proceeds over the amount which Deerfoot originally received when the stock was sold short would equal -$5,000 ($70 - $75 × 1000). Thus Deerfoot's return on investment during the year was:

ROR = [($70,000 - $75,000) - $2,000]/$35,000

= -.200 = -20.0%

14. Expressing the return on a short sold security on a per share basis (including interest on the initial margin deposit) given:

$$ROR = \frac{P_t - P_{t+1} - D_t + (im \times P_t \times r)}{(im \times P_t)}$$

a. If the Madison stock, which was originally sold short at $50 per share, rises to $58 then:

ROR = [($50 - $58 - $0) + (.45 × $50 × .08)]/(.45 × $50)

= -.276 = -27.6%

b. If the Madison stock, which was originally sold short at $50 per share, falls to $42 then:

ROR = [($50 - $42 - $0)] + (.45 × $50 × .08)]/(.45 × 50)
= .436 = 43.6

15. When an investor receives a margin call, then the collateral in his or her margin account has fallen below the minimum amount specified by the maintenance margin requirement. The investor's broker will request that the investor deposit additional cash and/or sell securities to bring the collateral up to or above the required level.

An investor's margin account is restricted if his or her collateral falls below the amount specified by the initial margin requirement. In this case the investor will not be requested to increase his or her margin, but he or she may not withdraw funds from the account such that the collateral would be further reduced.