Chapter 2

The Investment Decision Process and Investment Strategies

1. Although we stated in the text that the average investor is risk averse, can you think of some investors who are risk lovers or risk neutral?

Recall that a risk-averse investor is one who would not take a fair gamble (bet) since its expected payoff is zero. A risk-loving or risk-seeking investor is one who would take the gamble. In addition, she would prefer larger gambles to smaller gambles because the utility of winning exceeds the disutility of losing. For example, a gambler is a type of a risk-loving investor, because he derives pleasure from playing regardless of the cost. As another example, a risk-seeking investor would build (or select) a portfolio that has the highest risk. A risk-neutral or risk-indifferent investor falls between the previous two cases. In other words, she does not care if she takes or does not take the fair gamble, because risk is not important to her. Such investors construct portfolios that are expected to produce the highest expected return.

2. Why do people buy stocks and bonds and not just place their money in safe bank accounts or in other safe cash instruments?

Simply because there is a trade-off between expected return and risk. Also because not all investors are extremely risk averse so as to place all their investment funds into safe assets. Some investors are less risk averse and thus wish to take on more risk in hopes of realizing a higher return.

3. If you instruct your broker to buy 100 shares of Microsoft Corporation at the best current price available, what type of order are you placing?

That would be a market order.

4. Why do we say that the use of margin is a double-edged sword?

Because margin purchases are highly leveraged activities, and, although leverage enables you to have a higher upside potential, it might expose you to even higher downside risk.

5. If you begin your investment experience with a decision about how much money to put in, say, three asset classes, and then you proceed, choosing among the available securities in each asset class, you would apply which approach to portfolio construction?

That would be the two steps of the investment process, asset allocation and security selection. If done in that order, then you would apply the top-down approach to investing.

6. Assume that you paid $50 for a share of company H, which is now trading at $60. If you wish to protect your investment against downside risk, what kind of order can you place with your broker when you ask him to act if the price of the share hits $58?

You can place a sell-stop order.

7. Assume that you sold short at $50 and the current market price of the stock is $40. What type of order can you place at, say, $45 to protect you from the short sale?

You can place a buy-stop order.

8. Assume that the price of a share of company N trades at $50. You have $5,000 to invest and borrow another $5,000 from your broker so that you invest $10,000 in the stock. The broker charges you an interest rate of 4% on the loan.

a. If you are optimistic about the stock's prospects, expecting it to go up by 15% during next year, what would be your rate of return?
b. If your broker has a maintenance margin of 25%, how far can the price of the stock fall before she makes you a margin call?
c. What would be your rate of return if you had bought the stock with your own money? What did the use of margin do to your rate of return?
d. Now assume that your optimistic (bullish) expectations were not met, and the stock's price actually declined by 15%. What is your rate of return in this case?
e. Finally, what did your use of margin do to your rate of return in this case?

$$a.\ \text{Margin \%} = \frac{\text{Equity in account}}{\text{Value of stock}} = \frac{\$5,000}{\$10,000} = 50\%.$$

Number of shares = 200.
Loan repayment = $5,000 × 4% = $200 or total $5,200.
Value of stock = $10,000 × 15% = $11,500.
Equity in account = (values of) assets (stock) – liabilities = $11,500 – $5,200 = $6,300.

$$\text{Rate of return} = \frac{\text{Ending dollar amount – initial equity amount}}{\text{Initial equity amount}} = \frac{\$6,300 - \$5,000}{\$5,000} = 26\%.$$

$$b.\ \text{Maintenance margin} = \frac{\text{Equity in account}}{\text{Value of stock}}.$$

Denote P the price to be found.
Equity in account = new value of assets (number of shares × price) – liabilities = 200P – $5,000.

$$0.25 = \frac{200P - \$5,000}{200P} \qquad P = \$33.33.$$

c. $5,000 of own money × 15% = $750.
Rate of return = $750/$5,000 = 15%.
But by using leverage (borrowed money), the rate of return was 26% (see part a).

d. Loan amount to be repaid = $5,200.

New price of stock = $50 × (–15%) = $42.5.
New value of stock = number of shares × new price = 200 × $42.5 = $8,500.
New equity in account = $8,500 – $5,200 = $3,300.

$$\text{New rate of return} = \frac{\$3,300 - \$5,000}{\$5,000} = -34\%.$$

e. Leverage has magnified losses since standard losses would have been only 15%. Thus, leverage is a double-edged sword.

9. Assume that you expect the price of a stock to go down in the near future, and you sell short 100 shares of that stock. The current market price of the share is $50.

> *a. What is the maximum amount of cash equivalents that you must put up with your broker to abide by the Federal Reserve's initial margin requirement of 50%?*
> *b. If your broker has a maintenance margin of 25% of the value of your short position, how far can the price of the stock rise before you get a margin call?*

a. 100 shares × $50 = $5,000.
Thus, half of that, $2,500, is the additional (maximum) amount that you must put up in the account.

b. Denote P the price to be found.

Value of stock = 100P.
Equity = assets – liabilities.
Assets = equity (or value of stock) plus collateral (from part a) = $5,000 + $2,500 = $7,500.
Liabilities = unknown because you do not know the price to calculate the value of stock = 100P.
We use the (maintenance) margin formula

$$0.25 = \frac{\$7,500 - 100P}{100P} \qquad P = \$60.$$

10. Assume that you wish to invest $200 in a security on a monthly basis, and the current market

price of the security is $15. Assume also that every month the price of the security changes by $2. Construct two scenarios, one for a rising and another for a falling market, for the next six months using the dollar-cost averaging technique. Compute the total number of shares purchased (allow for fractional shares) and the total values in each scenario.

Initial price = $15.
Amount to be invested = $200.
Change in price = $2.

Month	Number of shares	
	Rising market	Falling market
1	200/15 = 13.33	200/25 = 8.00
2	200/17 = 11.76	200/23 = 8.69
3	200/19 = 10.52	200/21 = 9.52
4	200/21 = 9.52	200/19 = 10.52
5	200/23 = 8.69	200/17 = 11.76
6	200/25 = 8.00	200/15 = 13.33
	------------	------------
Total number of shares	61.82	61.82
Total value (61.82 × 25) =	$1,545.50	(61.82 × 15) = $927.30

11. Assume that you are given the following information on the company Green Mountain regarding the short sales of its stock:
> *Shares shorted (000s): 9,184.5*
> *% Float: 49.4*
> *Days to cover: 27*
> *Average daily volume (000s): 346*

> *a. How was the days to cover number derived?*
> *b. What is the meaning of that number?*

a. Shares shorted *over* the average daily volume = 9,184/364 = 27.

b. It would take approximately 27 days to cover the short.

12. Assume that you sell short 100 shares of AXZ Company, which currently sells for $50 per share.
> *a. What would be the maximum possible loss, theoretically speaking?*
> *b. What if you placed a stop-loss order at $55?*

a. In theory, the price can go down all the way to zero, thus losing all of your investment.
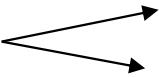
b. Your loss would only be $5 ($55 – $50).

13. Say you want to invest $300,000 in a portfolio of securities. Of that amount, you allocate $90,000 in a money market account and the rest in risky assets. The risky assets are stock H and bond N. You allocate $100,000 in H and the rest in N.

> *a. Compute the fractions you invested in each asset.*
> *b. Now compute the fractions (weights) invested in each asset, relative to the total investment budget. Add these percentages up. What is your total?*
> *c. Compute the new weights of each risky asset when you shift $10,000 from stock H to the money market account.*

a. 300,000 → 30% in safe (money market) instruments = $90,000/$300,000
        → 70% in risky assets = $210,000/$300,000

b.
Safe asset = $90,000/$300,000 = 30%.
Stock H = $100,00/$300,000 = 33.33%. ⎫
Stock N = $110,00/$300,000 = 36.67%. ⎬ Risky portfolio total 70%

Total   100.00%

c. From 70% to 66.67% ($200,000/$300,000).
Total holdings of safe asset increased to 100,000.

$$\text{Weight for stock H} = \frac{\$90,000}{\$200,000} = 0.45.$$

$$\text{Weight for stock N} = \frac{\$110,000}{\$200,000} = 0.55.$$