CHAPTER 03
SECURITIES MARKETS

1. An IPO is the first time a formerly privately-owned company sells stock to the general public. A seasoned issue is the issuance of stock by a company that has already undergone an IPO.

2. The effective price paid or received for a stock includes items such as bid-ask spread, brokerage fees, commissions, and taxes (when applicable). These reduce the amount received by a seller and increase the cost incurred by a buyer.

3. The primary market is the market where newly-issued securities are sold, while the secondary market is the market for trading existing securities. After firms sell their newly-issued stocks to investors in the primary market, new investors purchase stocks from existing investors in the secondary market.

4. The primary source of income for a securities dealer is the bid-ask spread. This is the difference between the price at which the dealer is willing to purchase a security and the price at which they are willing to sell the same security.

5. When a firm is a willing buyer of securities and wishes to avoid the extensive time and cost associated with preparing a public issue, it may issue shares privately.

6. A stop order is a trade is not to be executed unless stock hits a price limit. The stop-loss is used to limit losses when prices are falling. An order specifying a price at which an investor is willing to buy or sell a security is a limit order, while a market order directs the broker to buy or sell at whatever price is available in the market.

7. Many large investors seek anonymity for fear that their intentions will become known to other investors. Large block trades attract the attention of other traders. By splitting large transactions into smaller trades, investors are better able to retain a degree of anonymity.

8. Underwriters purchase securities from the issuing company and resell them. A prospectus is a description of the firm and the security it is issuing.

9. Margin is a type of leverage that allows investors to post only a portion of the value of the security they purchase. As such, when the price of the security rises or falls, the gain or loss represents a much higher percentage, relative to the actual money invested.

10. a. A market order has price uncertainty but not execution uncertainty.

11. a. An illiquid security in a developing country is most likely to trade in broker markets.

12.

a. In principle, potential losses are unbounded, growing directly with increases in the price of IBX.

b. If the price of IBX shares goes above $210, then the stop-buy order would be executed, limiting the losses from the short sale. If the stop-buy order can be filled at $200, the maximum possible loss per share is $10. The total loss is: $10 × 100 shares = $1000.

13. Answers to this problem will vary.

14.

a. In addition to the explicit fees of $60,000, we should also take into account the implicit cost incurred to DRK from the underpricing in the IPO. The underpricing is $4 per share, or a total of $400,000, implying total costs of $460,000.

b. No. The underwriters do not capture the part of the costs corresponding to the underpricing. However, the underpricing may be a rational marketing strategy to attract and retain long-term relationships with their investors. Without it, the underwriters would need to spend more resources in order to place the issue with the public. The underwriters would then need to charge higher explicit fees to the issuing firm. The issuing firm may be just as well off paying the implicit issuance cost represented by the underpricing.

15.

a. The stock is purchased for $40 × 300 shares = $12,000.

Given that the amount borrowed from the broker is $4,000, Dee's margin is the initial purchase price net borrowing: $12,000 – $4,000 = $8,000.

b. If the share price falls to $30, then the value of the stock falls to $9,000. By the end of the year, the amount of the loan owed to the broker grows to:

Principal × (1 + Interest rate) = $4,000 × (1 + 0.08) = $4,320.

The value of the stock falls to: $30 × 300 shares = $9,000.

The remaining margin in the investor's account is:

$$\text{Margin on long position} = \frac{\text{Equity in account}}{\text{Value of stock}}$$

$$= \frac{\$9{,}000 - \$4{,}320}{\$9{,}000} = 0.52 = 52\%$$

Therefore, the investor will not receive a margin call.

c. $\text{Rate of return} = \dfrac{\text{Ending equity in account} - \text{Initial equity in account}}{\text{Initial equity in account}}$

$$= \frac{\$4{,}680 - \$8{,}000}{\$8{,}000} = -0.4150 = -41.50\%$$

16.

a. The initial margin was: \$40 x 1,000 × 0.50 = \$20,000.

As a result of the \$10 increase in the stock price, Old Economy Traders loses: \$10 × 1,000 shares = \$10,000.

Moreover, Old Economy Traders must pay the dividend of \$2 per share to the lender of the shares: \$2 × 1,000 shares = \$2,000.

The remaining margin in the investor's account therefore decreases to: \$20,000 – \$10,000 – \$2,000 = \$8,000.

b. $\text{Margin on short position} = \dfrac{\text{Equity}}{\text{Value of shares owed}}$

$$= \frac{\$8{,}000}{\$50 \times 1{,}000 \text{ shares}} = 0.16 = 16\%$$

Because the percentage margin falls below the maintenance level of 30%, there will be a margin call.

c. $\text{The rate of return} = \dfrac{\text{Ending equity} - \text{Initial equity}}{\text{Initial equity}}$

$$= \frac{\$8{,}000 - \$20{,}000}{\$20{,}000} = -0.60 = -60\%$$

17.

a. The market-buy order will be filled at \$50.25, the best price of limit-sell orders in the book.

b. The next market-buy order will be filled at \$51.50, the next-best limit-sell order price.

c. As a security dealer, you would want to increase your inventory. There is considerable buying demand at prices just below $50, indicating that downside risk is limited. In contrast, limit-sell orders are sparse, indicating that a moderate buy order could result in a substantial price increase.

18.

a. Your initial investment is the sum of $5,000 in equity and $5,000 from borrowing, which enables you to buy 200 shares of Telecom stock:

$$\frac{\text{Initial investment}}{\text{Stock price}} = \frac{\$10{,}000}{\$50} = 200 \text{ shares}$$

The shares increase in value by 10%: $10,000 × 0.10 = $1,000.
You pay interest of = $5,000 × 0.08 = $400.
The rate of return will be:

$$\frac{\$1{,}000 - \$400}{\$5{,}000} = 0.12 = 12\%$$

b. The value of the 200 shares is 200*P*. Equity is (200*P* – $5,000), and the required margin is 30%.

Solving $\frac{200P - \$5{,}000}{200P} = 0.30$, we get $P = \$35.71$.

You will receive a margin call when the stock price falls below $35.71.

19.

a. Initial margin is 50% of $5,000, which is $2,500.

b. Total assets are $7,500 ($5,000 from the sale of the stock and $2,500 put up for margin). Liabilities are 100*P*. Therefore, net worth is ($7,500 – 100*P*).

Solving $\frac{\$7{,}500 - 100P}{100P} = 0.30$, we get $P = \$57.69$.

A margin call will be issued when the stock price reaches $57.69 or higher.

20. The broker is instructed to attempt to sell your Marriott stock as soon as the Marriott stock trades at a bid price of $68 or less. Here, the broker will attempt to execute but may not be able to sell at $68, since the bid price is now $67.95. The price at which you sell may be more or less than $68 because the stop-loss becomes a market order to sell at current market prices.

21.

a. The trade will be executed at $55.50.

b. The trade will be executed at $55.25.

c. The trade will not be executed because the bid price is lower than the price specified in the limit-sell order.

d. The trade will not be executed because the asked price is higher than the price specified in the limit-buy order.

22.

a. You will not receive a margin call. You invest in 1,000 shares of Ixnay at $40 per share with $20,000 in equity and $20,000 from borrowing. At $35 per share, the value of the stock becomes $35,000. Therefore, the equity decreases to $15,000:

Equity = Value of stock – Debt = $35,000 – $20,000 = $15,000

$$\text{Percentage margin} = \frac{\text{Equity in account}}{\text{Value of stock}}$$

$$= \frac{\$15{,}000}{\$35{,}000} = 0.4286 \text{ or } 42.86\%$$

The percentage margin still exceeds the required maintenance margin.

b. Solving $\frac{1{,}000P - \$20{,}000}{1{,}000P} = 0.35$ or 35%, we get $P = \$30.77$

You will receive a margin call when the stock price falls to $30.77 or lower.

23. The proceeds from the short sale (net of commission) were:
($21 × 100) – $50 = $2,050.

A dividend payment of $300 was withdrawn from the account. Covering the short sale at $15 per share costs (including commission): $1500 + $50 = $1550.

Therefore, the value of your account is equal to the net profit on the transaction:
$2,050 – $300 – $1,550 = $200.

Noted that the profit of $200 equals (100 shares x profit per share of $2), your net proceeds per share were:

$21	Selling price of stock
–$15	Repurchase price of stock
–$ 3	Dividend per share
–$ 1	2 trades x $0.50 commission per share
$ 2	

24. The total cost of the purchase is: \$40 × 500 = \$20,000.

Investing \$15,000 from your own funds and borrowing \$5,000 from the broker, you start the margin account with the net worth of \$15,000.

a.

(i) Net worth increases to: (\$44 × 500) – \$5,000 = \$17,000
Percentage gain = (\$17,000 – \$15,000)/\$15,000 = 0.1333 = 13.33%

(ii) With price unchanged, net worth is unchanged.
Percentage gain = zero

(iii) Net worth falls to (\$36 × 500) – \$5,000 = \$13,000
Percentage gain = ((\$13,000 – \$15,000)/\$15,000 = –0.1333 = –13.33%

The relationship between the percentage return and the percentage change in the price of the stock is given by:

$$\%\ \text{return} = \%\ \text{change in price} \times \frac{\text{Total investment}}{\text{Investor's initial equity}}$$

$$= \%\ \text{change in price} \times 1.3333$$

For example, when the stock price rises from \$40 to \$44, the percentage change in price is 10% (0.10), while the percentage gain for the investor is:

$$\%\ \text{return} = 0.10 \times \frac{\$20{,}000}{\$15{,}000} = 0.1333 \text{ or } 13.33\%$$

b. The value of the 500 shares is 500*P*. Equity is (500*P* – \$5,000). You will receive a margin call when:

$$\frac{500P - \$5{,}000}{500P} = 0.25 \text{ or } 25\%, \text{ when } P = \$13.33 \text{ or lower.}$$

c. The value of the 500 shares is 500*P*. But now you have borrowed \$10,000 instead of \$5,000. Therefore, equity is (500*P* – \$10,000). You will receive a margin call when:

$$\frac{500P - \$10{,}000}{500P} = 0.25 \text{ or } 25\% \text{ when } P = \$26.67.$$

With less equity in the account, you are far more vulnerable to a margin call.

d. By the end of the year, the amount of the loan owed to the broker grows to:

$$\$5{,}000 \times (1 + 0.08) = \$5{,}400$$

The equity in your account is ($500P$ – $5,400). Initial equity was $15,000. Therefore, the rate of return after one year is as follows:

(i) $$\frac{(500 \times \$44) - \$5{,}400 - \$15{,}000}{\$15{,}000} = 0.1067 = 10.67\%$$

(ii) $$\frac{(500 \times \$40) - \$5{,}400 - \$15{,}000}{\$15{,}000} = -0.0267 = -2.67\%$$

(iii) $$\frac{(500 \times \$36) - \$5{,}400 - \$15{,}000}{\$15{,}000} = -0.1600 = -16.00\%$$

The relationship between the percentage return and the percentage change in the price of XTel is given by:

$$\%\ \text{return} = \left(\%\ \text{change in price} \times \frac{\text{Total investment}}{\text{Investor's initial equity}}\right)$$

$$-\left(8\% \times \frac{\text{Funds borrowed}}{\text{Investor's initial equity}}\right)$$

For example, when the stock price rises from $40 to $44, the percentage change in price is 10% (0.10), while the percentage gain for the investor is:

$$\left(.10 \times \frac{\$20{,}000}{\$15{,}000}\right) - \left(.08 \times \frac{\$5{,}000}{\$15{,}000}\right) = .1067 \text{ or } 10.67\%$$

e. The value of the 500 shares is $500P$. Equity is ($500P$ – $5,400). I will receive a margin call when:

$$\frac{500P - \$5{,}400}{500P} = 0.25 \text{ or } 25\% \text{ when } P = \$14.40 \text{ or lower.}$$

25.

a. Given the $15,000 invested funds and assuming the gain or loss on the short position is ($-500 \times \Delta P$), we can calculate the rate of return using the following formula:
Rate of return = $(-500 \times \Delta P)/15{,}000$

Thus, the rate of return in each of the three scenarios is:

(i) Rate of return = $(-500 \times \$4)/\$15{,}000 = -0.1333 = -13.33\%$

(ii) Rate of return = (–500 × $0)/$15,000 = 0%
(iii) Rate of return = [–500 × (–$4)]/$15,000 = 0.1333 = 13.33%

Total assets on margin are the sum of the initial margin and the proceeds from the sale of the stock:
$20,000 + $15,000 = $35,000. Liabilities are 500*P*. A margin call will be issued when:

$$\frac{\$35{,}000 - 500P}{500P} = 0.25 \text{ or } 25\% \text{ when } P = \$56 \text{ or higher.}$$

b. With a $1 dividend, the short position must now pay on the borrowed shares: ($1/share × 500 shares) = $500. Rate of return is now:
[(–500 × Δ*P*) – 500]/15,000

(i) Rate of return =[(–500 × $4) – $500]/$15,000 = –0.1667 = –16.67%
(ii) Rate of return = [(–500 × $0) – $500]/$15,000 = –0.0333 = –3.33%
(iii) Rate of return = [(–500) × (–$4) – $500]/$15,000 = 0.1000 = 10.00%

Total assets are $35,000, and liabilities are (500*P* + 500). A margin call will be issued when:

$$\frac{\$35{,}000 - 500P - 500}{500P} = 0.25 \text{ or } 25\% \text{ when } P = \$55.20 \text{ or higher.}$$

CFA 1

d. Cannot tell from the information given.
The broker will start to sell when the stock price hits $55 and keep doing so if the price further tumbles.

CFA 2

d. Act as odd-lot dealers.