Chapter 2  
Buying and Selling Securities

**Concept Questions**

1. Purchasing on margin means borrowing some of the money used to buy securities. You do it because you desire a larger position than you can afford to pay for, recognizing that using margin is a form of financial leverage. As such, your gains and losses will be magnified. Of course, you hope you only experience the gains.

2. Shorting a security means borrowing it and selling it, with the understanding that at some future date you will buy the security and return it, thereby “covering” the short. You do it because you believe the security’s value will decline, so you hope to sell high now, then buy low later.

3. Margin requirements amount to security deposits. They exist to protect your broker against losses.

4. Asset allocation means choosing among broad categories such as stocks and bonds. Security selection means picking individual assets within a particular category, such as shares of stock in particular companies.

5. They can be. Market timing amounts to active asset allocation, moving money in and out of certain broad classes (such as stocks) in anticipation of future market direction. Of course, market timing and passive asset allocation are not the same.

6. Some benefits from street name registration include:

   a. The broker holds the security, so there is no danger of theft or other loss of the security. This is important because a stolen or lost security cannot be easily or cheaply replaced.

   b. Any dividends or interest payments are automatically credited, and they are often credited more quickly (and conveniently) than they would be if you received the check in the mail.

   c. The broker provides regular account statements showing the value of securities held in the account and any payments received. Also, for tax purposes, the broker will provide all the needed information on a single form at the end of the year, greatly reducing your record-keeping requirements.

   d. Street name registration will probably be required for anything other than a straight cash purchase, so, with a margin purchase for example, it will be required.

7. Probably none. The advice you receive is unconditionally *not* guaranteed. If the recommendation was grossly unsuitable or improper, then arbitration is probably your only possible means of recovery. Of course, you can close your account, or at least what’s left of it.

8. If you buy (go long) 500 shares at $18, you have a total of $9,000 invested. This is the most you can lose because the worst that could happen is that the company could go bankrupt, leaving you with worthless shares. There is no limit to what you can make because there is no maximum value for your shares – they can increase in value without limit.
9. If the asset is illiquid, it may be difficult to quickly sell it during market declines, or to purchase it during market rallies. Hence, special care should always be given to investment positions in illiquid assets, especially in times of market turmoil.

10. The worst that can happen to a share of stock is for the firm to go bankrupt and the stock to become worthless, so the maximum gain to the short position is $60,000. However, since the stock price can rise without limit, the maximum loss to a short stock position is unlimited.

Core questions

1. Maximum investment = $12,000 / .50 = $24,000; $24,000/$75 per share = 320 shares.

2. Margin loan = ($60 × 500) – $18,000 = $12,000
   Margin requirement = $18,000 / ($60 × 500) = 0.60 or 60%

3. Terminal price = $70
   Without margin = ($70 – 60) / $60 = 16.67%
   With margin = [($70 × 500) – $12,000 – $18,000] / $18,000 = 27.78%

   Terminal price = $50
   Without margin = ($50 – 60) / $60 = –16.67%
   With margin = [($50 × 500) – $12,000 – $18,000] / $18,000 = –27.78%

4. Initial deposit = 0.40 × ($60 × 500) = $12,000
   Terminal price = $70
   Without margin = ($70 – 60) / $60 = 16.67%
   With margin = [($70 × 500) – $12,000 – $18,000] / $12,000 = 41.67%

   Terminal price = $50
   Without margin = ($50 – 60) / $60 = –16.67%
   With margin = [($50 × 500) – $12,000 – $18,000] / $12,000 = –41.67%

5. Total order = $10,000 / 0.60 = $16,666.67

6. Amount borrowed = (1,200 × $110)(1 – .60) = $52,800
   Margin call price = $52,800 / [1,200 – (0.35 × 1,200)] = $67.69

7. Amount borrowed = (5,000 × $42)(1 – .50) = $105,000
   Margin call price = $105,000 / [5,000 – (0.25 × 5,000)] = $28.00
   Stock price decline = ($28.00 – 42.00) / $42.00 = –33.33%

8. Proceeds from short sale = 700 × $92 = $64,400
   Initial deposit = $64,400(.50) = $32,200
   Account value = $64,400 + 32,200 = $96,600
   Margin call price = $96,600 / [700 + (.30 × 700)] = $106.15

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9. Proceeds from short sale = 1,000($45) = $45,000
   Initial deposit = $45,000(.60) = $27,000
   Account value = $45,000 + 27,000 = $72,000
   Margin call price = $72,000 / [1,000 + (.40 × 1,000)] = $51.43
   Account equity = $72,000 – (1,000 × $51.43) = $20,570

10. Pretax return = ($71.00 – 63.00 + 1.20) / $63.00 = 14.60%
    Aftertax capital gains = ($71.00 – 63.00)(1 – .20) = $6.40
    Aftertax dividend yield = $1.20(1 – .31) = $0.828
    Aftertax return = ($6.40 + 0.828) / $63.00 = 11.47%

Intermediate questions

11. Assets                 Liabilities and account equity
    320 shares  $24,000  Margin loan   $12,000
    Account equity 12,000
    Total  $24,000     Total  $24,000

      Stock price = $90
      Assets                 Liabilities and account equity
    320 shares  $28,800  Margin loan   $12,000
    Account equity 16,800
    Total  $28,800     Total  $28,800

      Margin = $16,800/$28,800 = 58.3%

      Stock price = $65
      Assets                 Liabilities and account equity
    320 shares  $20,800  Margin loan   $12,000
    Account equity 8,800 
    Total  $20,800     Total  $20,800

      Margin = $8,800/$20,800 = 42.3%

12. 400 shares × $43 per share = $17,200; initial margin = $10,000/$17,200 = 58.14%
      Assets                 Liabilities and account equity
    400 shares  $17,200  Margin loan   $7,200
    Account equity 10,000
    Total  $17,200     Total  $17,200
13. 300 shares × $80 = $24,000
   Margin loan = $24,000 – $15,000 = $9,000
   Margin call price = $9,000 / [300 – (0.30 × 300)] = $42.86
   To meet a margin call, you can deposit additional cash into your trading account, liquidate shares until your margin requirement is met, or deposit additional marketable securities against your account as collateral.

14. Interest on loan = $9,000(1.065) – $9,000 = $585
   a. Proceeds from sale = 300($96) = $28,800
      Dollar return = $28,800 – 15,000 – 9,000 – 585 = $4,215
      Rate of return = $4,215 / $15,000 = 28.10%
      Without margin, rate of return = ($96 – 80)/$80 = 20%
   b. Proceeds from sale = 300($80) = $24,000
      Dollar return = $24,000 – 15,000 – 9,000 – 585 = –$585
      Rate of return = –$585 / $15,000 = –3.90%
      Without margin, rate of return = 0%
   c. Proceeds from sale = 300($64) = $19,200
      Dollar return = $19,200 – 15,000 – 9,000 – 585 = –$5,385
      Rate of return = –$5,385 / $15,000 = –35.90%
      Without margin, rate of return = ($64 – 80)/$80 = –20%

15. Amount borrowed = (1,000 × $40)(1 – .50) = $20,000
   Interest = $20,000 × .10 = $2,000
   Proceeds from sale = 1,000 × $57 = $57,000
   Dollar return = $57,000 – 20,000 – 20,000 – 2,000 = $15,000
   Rate of return = $15,000 / $20,000 = 75.00%

16. Total purchase = 1,000 × $40 = $40,000
   Loan = $40,000 – 25,000 = $15,000
   Interest = $15,000 × .085 = $1,275
   Proceeds from sale = 1,000 × $45 = $45,000
   Return = ($45,000 + 1,000 – 25,000 – 15,000 – 1,275) / $25,000 = 18.90%

17. $120,000 × (1.09)^{1/2} – 120,000 = $5,283.68

18. $80,000 × (1.07)^{1/6} – 80,000 = $907.22

19. (1 + .14)^{12/9} – 1 = 19.09%

20. (1 + .14)^{12/7} – 1 = 25.18%
   All else the same, the shorter the holding period, the larger the EAR.

21. Holding period return = ($43 – 50 + 0.40) / $50 = –13.20%
    EAR = (1 – .1320)^{12/4} – 1 = –34.60%
22. Initial purchase = 400 × $43 = $17,200
   Amount borrowed = $17,200 − 10,000 = $7,200
   Interest on loan = $7,200(1 + .0725)\(1/2\) − 7,200 = $256.43
   Dividends received = 400($0.75) = $300
   Proceeds from stock sale = 400($48) = $19,200
   Dollar return = $19,200 + 300 − 10,000 − 7,200 − 256.43 = $2,043.57
   Rate of return = $2,043.57 / $10,000 = 20.44% per six months
   Effective annual return = \((1 + .2044)^2 − 1\) = 45.05%

23. Proceeds from sale = 3,000 × $80 = $240,000
   Initial margin = $240,000 × 1.00 = $240,000

<table>
<thead>
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<th>Assets</th>
<th>Liabilities and account equity</th>
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<tbody>
<tr>
<td>Proceeds from sale</td>
<td>$240,000</td>
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<tr>
<td>Initial margin deposit</td>
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<td>Total</td>
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24. Proceeds from sale = $3,000 × $80 = $240,000
   Initial margin = $240,000 × 0.75 = $180,000

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25. Proceeds from short sale = 1,500($50) = $75,000
   Initial margin deposit = $75,000(.50) = $37,500
   Cost of covering short = 1,500($36) = $54,000
   Cost of covering dividends = 1,500($0.80) = $1,200
   Dollar profit = $75,000 − 54,000 − 1,200 = $19,800
   Rate of return = $19,800 / $37,500 = 52.80%
Proceeds from sale = $2,000 \times 85 = $170,000 \\
Initial margin = $170,000 \times 0.50 = $85,000

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Initial Balance Sheet

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<tr>
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Stock price = $75

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<td>Initial margin deposit</td>
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<tr>
<td>Total</td>
<td>$255,000</td>
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Margin = $105,000 / $150,000 = 70.00% \\
Four-month return = ($105,000 – 85,000) / $85,000 = 23.53% \\
Effective annual return = (1 + .2353)^3 – 1 = 88.50%

Stock price = $95

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<td>Total</td>
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Margin = $65,000 / $190,000 = 34.21% \\
Four-month return = ($65,000 – 85,000) / $85,000 = –23.53% \\
Effective annual return = (1 – .2353)^3 – 1 = 55.28%