Trading on margin

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Formulas

Equity = Value of shares in account - loan

$$\text{Profit or loss from buying on margin} = \text{proceeds from sale} - \text{commission on sale} - \text{cost of shares} - \text{commission on purchase} - \text{interest on loan}$$

$$\text{Return on margin account} = \frac{\text{profit or loss}}{\text{initial equity}}$$

Problems

1. Suppose you buy 1000 shares of General Motors (GM) stock at $36 per share, for a total purchase price of $36,000. And suppose you deposit $18,000 to meet the 50% margin requirement, borrowing the remainder. Suppose that the maintenance requirement is 30%.
    a. What is your initial equity?
    b. What is your equity in the account if the stock's price rises to $40 per share?
    c. What is your equity in the account if the stock's price falls to $30 per share?
    d. What is the minimum value of the securities before there is a margin call on your account?
2. Suppose you buy 200 shares of stock that is currently trading for $100 per share. And suppose you buy this stock using a 50% margin, borrowing $10,000 of the purchase price of $20,000. If the stock pays no dividend, you incur a 1% commission when buying and selling the stock, and the margin loan is at a rate of 8% per year, what is the return on your investment if you sell the shares after one year at:
    a. $125 per share?
    b. $100 per share?
    c. $90 per share?

Solutions

Hints:

- *You make a profit on margin trading when the price of the stock rises by more than the amount of any commissions and interest on the margin loan.*
- *The return on trading on margin is always relative to the investment, which is the price of shares less any margin loan amount.*

1.

a. $36,000 – 18,000 = **$18,000**
equity in account = $18,000 / $36,000 = 50%

b. $40,000 – 18,000 = **$22,000**
equity in account = $22,000 / $40,000 = 55%

c. $30,000 – 18,000 = **$12,000**
equity in account = $12,000 / $30,000 = 40%

d. $$\frac{\text{Value of shares-equity}}{\text{Value of shares}} = \frac{\text{Value of shares-\$18,000}}{\text{Value of shares}} = 30\%$$

Value of shares = $25,714.29, or **$25.714** per share

2.

a. $25,000 – 250 – 20,000 – 200 – 800 = $3,750
return = $3,750 / $10,000 = **37.50%**

b. $20,000 – 200 – 20,000 – 200 – 800 = -$1,200
return = -$1,200 / $10,000 = **-12%**

c. $18,000 – 180 – 20,000 – 200 – 800 = -$3,180
return = -$3,180 / $10,000 = -**31.8%**