FINM2063 Introduction to Finance

Chapter 10 Exercises

Solutions

1. 1. Must remit the margin requirement: $5,000
   2. The contract is worth $105,500, so the profit is $5,500.

The return is $5,500/$5,000 = 110%.

* 1. The contract is worth $97,800. The lose is $2,200.
  2. At $948, the contract is worth $94,800. The investor has lost $5,200 which exceeds the initial margin of $5,000. The investor will have to remit $5,200 to restore the initial $5,000 margin.
  3. At $932, the contract is worth $93,200 which reduces the margin from $5,000 (in part d) by an additional $1,600. The amount in the account is now $5,000 - 1,600 = $3,400. The maintenance margin requirement ($1,500) is being met, so the investor does not have to remit additional funds.

1. a. When the contract is purchased, the speculator must put up the margin requirement: $2,500.

b. Value of the contract based on the index:

$500 x 58.8 = $29,400

c. If the value of the index rises by 1% to 59.39, the value of the futures contract becomes:

$500 x 59.39 = $29,695.

The value of the contract rises by:

$29,695 ‑ $29,400 = $295.

Since the investor put up only the $2,500 margin, the percentage earned is $295/$2,500 = 11.8%.

The 1% increase in the index generated an 11.8% increase in the investor's position.

d. The value of the contract declines to:

$500 x 58.2 = $29,100.

The buyer's loss on the position is

$29,100 ‑ $29,400 = ($300).

The percentage loss is ($300)/$2,500 = (12%).

e. At 53.8 the contract is worth 53.8 x $500 = $26,900.

The value of the contract declines by $2,500 ($26,900 ‑ $29,400 = ‑$2,500). The buyer loses 100% of the funds committed (i.e., the margin), but the seller makes 100% on the funds committed (i.e., the $2,500 margin required of the seller).

1. a. Payment in terms of the spot price:

1,000,000 pounds X $1.60 = $1,600,000

b. Payment in terms of the futures price:

1,000,000 pounds X $1.56 = $1,560,000

c. If the price of the pound declines to $1.40, the recipient receives pounds worth $1,400,000. The loss from the decline in the value of the pound from $1.60 to $1.40 is $200,000 ($1,600,000 ‑ $1,400,000).

d. To hedge, the investor enters a contract for the future delivery (i.e., to sell pounds). The contract's value is $1,560,000 based on the futures price of $1.56. When the investor receives the pounds after six months, that investor can now deliver them at the price specified in the contract. The cost of the hedge is the difference between the spot and futures price times the number of pounds: ($1.60 ‑ $1.56)(1,000,000) = $40,000.

e. Since the investor has a contract to sell pounds at $1.56, the price decline is irrelevant. The loss (the cost in part d) remains $40,000.

f. Since the investor has a contract to sell pounds at $1.56, the price increase is irrelevant. By hedging, the investor has forgone the opportunity for profit that would result from an increase in the value of the pound.

g. If the investor had not hedged, 1,000,000 pounds would now be worth $1,800,000, and the investor would have earned a $200,000 profit on the increase in the value of the pound from $1.60 to $1.80. (Stress that the intent of the hedge is to reduce the risk of loss from a price decline. To achieve this risk reduction, the hedger forgoes the possible gain from the price increase.)