END OF CHAPTER EXERCISES

Chapter 2 : Futures Markets

Financial Engineering : Derivatives And Risk Management
(Keith Cuthbertson, Dirk Nitzsche)

1. Why do futures provide leverage?

2. Why might you need to “roll over the hedge” in the futures market?

3. You are already long 100 contracts at a settlement price of $50,000 per contract. Next day at 11am you acquire an additional 20 contracts at a price of $51,000 per contract. The initial margin is $2000 per contract. The settlement price at the end of the day is $52,000 per contract. What happens to the margin account on day-2?

4. You enter into a forward contract on a non-dividend paying stock with maturity of 1-year, with $S_0 = $40 and $r = 10\%$ p.a.
   (a.) What is the “no-arbitrage” (synthetic) futures price of the contract?
   (b.) If the actual futures price is $F = 46$ how can you make a riskless arbitrage profit?
   (c.) If the actual futures price is $F = 42$ how can you make a riskless arbitrage profit?

5. Does a perfect hedge using futures, involve locking in the current spot price which will then effectively be the price paid in the future?

6. What is the ‘convenience yield’ and how does it complicate arbitrage between the spot and futures markets?

7. Discuss the key features of Shillers’ approach to hedging house prices and labour income using futures markets.