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.