# END OF CHAPTER EXERCISES

## Chapter 4 : Currency Forwards And Futures

### Financial Engineering : Derivatives And Risk Management

**(Keith Cuthbertson, Dirk Nitzsche)**

1. What does covered interest parity CIP mean and what determines whether CIP holds at any point in time?

2. It is the 15th of October, the spot rate is 0.85 ($/€) and the forward quote for delivery on 15th of December is 0.853 ($/€). Is the Euro at a forward premium against the US Dollar or at a forward discount? What is the markets view about the future path of the spot exchange rate between October and December?

3. How would a US firm importing goods from Switzerland in six months time hedge its position by using the futures market ?

4. Suppose the interest rate in the USA over a 6-month horizon is 10% p.a. (continuously compounded) and in the UK is 5% p.a. The current spot rate S = 2 ($/£). If covered interest parity holds then is Sterling at a forward premium or discount against the dollar and by how much? Explain ! Is the market in “contango” or “backwardation” ?

5. The spot price of the SFr (CHF) or “Swissy” is 0.65 ($/SFr) and the futures price on a 2 month contract is $0.66. Interest rates over 2 months in Switzerland and the USA are 2% and 8% p.a. respectively (continuously compounded). What arbitrage opportunities exist?

6. You are a Corporate Treasurer of a US multinational and on 27th June you learn that your British subsidiary will transfer £10m to New York on 28th September. You decide to hedge the position using currency futures on IMM (CME). Spot and futures rates on 27th of June are:

   $S_0$ = 1.3630 ($/£) $F_0$ = 1.3750 ($/£)

   On 28th September the rates are :

   $S_1$ = 1.2375 ($/£) $F_1$ = 1.2380 ($/£)

   (a.) What expiry month for the futures would you choose (Sept, Oct or Dec) ?
   (b.) Would you go long or short sterling futures and how many contracts would you purchase/sell? (one sterling futures contract is for delivery of £62,500)
   (c.) What is the unhedged and hedged outcome on 28th September ?
   (d.) What is the initial ‘basis’ and the final ‘basis’? What do these imply?

7. The UK Treasurer of *Suits plc* expects to receive a payment for wool exports to a customer in Munich in three months' time. Her marketing department has sold 1,000, "100% wool suits" for a delivered price of 250 Euros each. In the Financial Times on $10^{th}$ June, she reads the following :

| | | |
|---|---|---|
| Spot FX rate | 0.850 (€/£) | |
| Three month forward FX rate | 0.853 (€/£) | |
| £ - 3 month interest rate (annualized) | r = 5 (9/16) | (= 0.055625) |
| € - 3 month interest rate (annualized) | r* = 7(1/16) | (= 0.07625) |

(a.) Explain using the above data, how the Treasurer can hedge her receipts in Euros by :
   (i) taking forward cover
   (ii) taking money market cover.

(b) What would be the amount of sterling received if the Treasurer took an uncovered (open) position and the spot rates $S_T$ in 3-months time are as follows
   (i) 0.653 (€/£)
   (ii) 0.658 (€/£)
   (iii) 0.640 (€/£)

   In each case, compare the hedged outcome with the uncovered outcome.

(c) Does the set of interest and exchange rates prevailing on 15th June conform with covered interest parity? If not, explain how equilibrium will be established in the relevant markets