END OF CHAPTER EXERCISES

Chapter 21 : Options Markets

Investments : Spot and Derivatives Markets

(Keith Cuthbertson, Dirk Nitzsche)

1. Intuitively, would you pay more for a European put option on a stock with a strike price of K = 100 when the current stock price was 98 or when it was 99? Briefly explain.

2. Would you make a profit on a long call option or a long put option if the stock price was S = 100 when you purchased the option and S = 120 when you sold the option (assume no change in other factors that influence the option price).

3. On 1st March the ordinary shares of *Branson plc* stood at S = 469p. In the traded options market April-500p puts have a premium P = 47p. If the share price falls to S_T = 450p, how much, if any, profit would an investor make? What will the option be worth if the share price moves up to 510p?

4. Frank purchased a call option on 100 shares in *Gizmo plc* six months ago at a call premium of C = 10p per share. The share price at the time was S = 110p and the strike price was K = 120p. Just prior to expiry the share price rose to S_T = 135p.
   (a) State whether the option should be exercised.
   (b) Calculate the profit or loss on the option
   (c) Would Frank have done better by investing the same amount of cash six months ago in a bank offering 10 percent p.a.?

5. Below are quotes for options on IBM from the *Wall Street Journal*. Explain the key features in the table.

LISTED OPTIONS QUOTATIONS
Monday 3rd January 2000

			CALL		PUT	
IBM	**Strike**	**Exp**	**Vol**	**Last**	**Vol**	**Last**
$107^{7/8}$	105	Jan	325	$6^{1/2}$	1679	$3^{1/2}$
$107^{7/8}$	110	Jan	1068	$4^{1/8}$	403	$6^{1/8}$
$107^{7/8}$	115	Jan	928	$2^{1/2}$	21	$9^{1/4}$
$107^{7/8}$	115	Feb	842	$4^{3/4}$	22	$11^{1/4}$
$107^{7/8}$	120	Jan	677	$1^{5/16}$	40	13
$107^{7/8}$	120	Feb	165	$3^{1/4}$	2	$14^{3/4}$

6. Using the data in Table above calculate and comment on the intrinsic value and time value of the 115-calls which expire in January and February.

7. If you exercise a position in a long call option on IBM shares on CBOE, who exactly delivers the shares?