Chapter 7

Options

Shown in the table are the prices of 6 options on the shares of HILO inc on November 15th, 2010.

Series	Exercise price ($)	Option price ($)
Call January 11	34.00	2.55
Call January 11	35.00	2.05
Call March 11	35.00	2.95
Put January 11	35.00	2.85
Put May 11	30.00	2.25
Put May 11	31.75	2.80

The price of the shares on that day was $34.25.

A. Which of the six options are 'in the money' and which are 'out of the money'? Motivate your answer.

B. There are two calls with an exercise price of $35.00. Explain why the call expiring in March has the higher price of the two.

C. Calculate the intrinsic value for the two January calls and the January put options.

D. What can you say about the price of a put option with an exercise price of $30.00 that expires in June 2011?

E. Suppose that on the expiration date in January 2011 the shares of HILO are trading at $37.00. What is your percentage gain or loss if on November 15th 2010 you had bought:

1. One call January 11, 34.00
2. One call January 11, 35.00
3. One put January 11, 35.00
4. One share of HILO

(Assume options cannot be exercised before expiration date)

Solutions Options

A. Only the January call 34 and the January put 35 are in the money.
B. It has a longer time to expiration so it must have a higher price.
C.

	Intrinsic Value
Call January 11	34.25 – 34 = 0.25
Call January 11	34.25 – 35 = (0.75) = 0
Put January 11	35 – 34.25 = 0.75

D. It must be higher than $2.25.

E. 1. ($3 - $2.55)/$2.55 = 18%
2. ($2 – $2.05)/$2.05 = (2.4%)
3. loss of $2.85 = 100%
4. $2.75/$34.25 = 8%

Air France KLM Optins

On September 27th the following data have been collected regarding options on Air France-KLM stock. The stock price on that day was €5.57.

Option Type	Exercise Price	Expiration	Option Price
1.Call	5.20	October	0.55
2.Call	6.00	October	0.14
3.Put	6.80	October	1.30
4.Put	7.00	October	1.70

A. Explain what options are in or out of the money.
B. Calculate the intrinsic value of each option.
C. Why do options become more expensive when the price movement of the underlying stock is more volatile?

Solutions Air France KLM

A. The only option that is out of the money is option 2 (the 6.00 call). The others are in.

B. Intrinsic value:
1. 5.57 – 5.20 = 0.37
2. 5.57 – 6 = 0
3. 6.80 – 5.57 = 1.23
4. 7 – 5.57 = 1.43

C. Check page 144 for the reason.