

ECON 133 – Securities Markets – FALL 2010, UCSC

REMINDER!! Read for Monday: Mark Carlson (2007) "A Brief History of the 1987 Stock Market Crash, with a Discussion of the Federal Reserve Response" FEDS Working Paper No. 2007-13

HOMEWORK # 6 (Due Wednesday Nov. 24, BEGINNIG OF CLASS)

1. Nick Leeson brought down Barings by betting on Nikkei index options. The strategy he employed is called a short straddle. Answer the follow questions on the short straddle.
 - a) Draw the payoff function of writing a call option on the index with exercise price of \$100 (label axes and all relevant points).
 - b) Draw the payoff function of writing a put option on the same index, also with a \$100 exercise price (label axes and all relevant points).
 - c) If the price for buying a call in a) is \$5 and the put in b) is also \$5, draw the PROFIT function of short straddle. That is, what is the PROFIT function of writing the call in a) and the put in b) at the same time?
 - d) A short straddle will make money only when the underlying index fluctuates inside a particular price range. Find out the range.
2. **CH.15.5** You purchase one IBM March 100 put contract for a premium of \$6.47, what is your maximum possible profit? (See Figure 15.1.)
3. **CH.15.6** An investor buys a call at a price of \$4.50 with an exercise price of \$40. At what stock price will the investor break even on the purchase of the call?
4. **CH.15.7** You establish a straddle on Intel using September call and put options with a strike price of \$50. The call premium is \$4.25 and the put premium is \$5.00.
 - a) What is the most you can lose on this position?
 - b) Using option payoff table, what will be your profit or loss if Intel is selling for \$58 in September?
 - c) At what stock prices will you break even on the straddle?

5. **CH.15.11** The common stock of the P.U.T.T. Corporation has been trading in a narrow price range for the past month, and you are convinced it is going to break far out of that range in the next three months. You do not know whether it will go up or down, however. The current price of the stock is \$100 per share, the price of a three-month call option with an exercise price of \$100 is \$10, and a put with the same expiration date and exercise price costs \$7.
- a) What would be a simple options strategy to exploit your conviction about the stock price's future movements?
 - b) How far would the price have to move in either direction for you to make a profit on your initial investment?
6. ***The Myth of the Rational Market*, Chapter 13 Question 1:** Portfolio insurance helped insulate funds from losses successfully for a number of years. Why did portfolio insurance ultimately disappoint?
7. ***The Myth of the Rational Market*, Chapter 13 Question 2:** If stock market returns were in fact normally distributed, what would be the likelihood of a 22.5 percent decline that occurred on Oct. 19, 1987?
8. ***The Myth of the Rational Market*, Chapter 13 Question 3:** Observers such as Nassim Taleb argue that widespread use of risk management techniques by investors wound up increasing market systemic risk. Why might this be so?