**EXTRA PROBLEMS**

1. In July, a small chocolate factory receives a large order for chocolate bars to be delivered in November. The spot price for Cocoa is $2,400 per metric ton. It will need 10 metric tons of Cocoa in September to fill this order. Because of limited storage capacity and volatility in the world cocoa prices, the company decides the best strategy is to buy 10 call options for $53 each with strike price of $2,400 (equal to the current price) with a maturity date of September 2012. When the options expire in September, how much will the company pay (including the cost of the options) for cocoa if the spot price in September proves to be: a) $2,300, and b) $2,600? ($23,530, $24,530)
2. A trader invests in Facebook by buying 1000 shares in June for $27 per share. She also buys 1000 put options for $5 each as insurance in case the stock drops sharply. The put options have a strike price of $27 and a maturity date of December. What is the gain or loss if the spot price on December is: a) $20, b) $27, c) $32 and d) $37? ($5,000 loss, $5,000 loss, $0, $5,000 gain)
3. The spot price for Google stock is $578 on June 6. A trader considers two alternatives: buy 100 shares of the stock, or buy 100 European call options on Google for $38 each with a strike price of $575 and maturity date of September 2012. For each alternative, what is: a) the upfront cost? b) the total gain if the stock price at maturity is $650? c) the total loss if the stock price is $500 at maturity?

($57,800 and $3,800; $7,200 and $3,700; -$7,800 and -$3,800)

1. A trader takes the long position and a hedge fund takes a short position on ten 1-month S&P 500 futures contracts at 1300. A single S&P 500 futures contract equals ($250) x (Index Value). The initial margin is $325,000 and the maintenance margin is $245,000 for both accounts. Ten trading days later, the futures price of the index drops to 1,260 triggering a margin call for the trader. What is the change margin account balance (indicate gain or loss) for: a) the trader and b) the hedge fund? What is the margin call for the trader? (trader: $100,000 loss, hedge fund: $100,000 gain, margin call: $100,000)
2. A speculator sells a July 2013 wheat futures contract at 721 cents per bushel. Each futures contract is for 5,000 bushels. The futures price drops to 676 on December 31, 2012 and rises to 712 in May 2013 when she closes the contract. What is the gain or loss for accounting purposes in 2013? ($180,000 loss)

In December 2011, a company expects to buy 100,000 MMBtu of natural gas before the end of March 2012, but does not know exactly when. To hedge against volatile gas prices, it implements a rolling forward hedge by taking a long position on 10 two-month natural gas futures (only held for 1 month). One futures contract is for 10,000 MMBtu and is quoted in $ per MMBtu. The commodity is purchased in March 2012. What is total dollar gain/loss from the rolling hedge? Assume a hedge ratio of 0.8.