

Assignment #1

Futures, Options and other Derivatives

- 1.28. The price of gold is currently \$500 per ounce. The forward price for delivery in one year is \$700. An arbitrageur can borrow money at 10% per annum. What should the arbitrageur do? Assume that the cost of storing gold is zero and that gold provides no income.
- 1.29. The current price of a stock is \$94, and three-month call options with a strike price of \$95 currently sell for \$4.70. An investor who feels that the price of the stock will increase is trying to decide between buying 100 shares and buying 2,000 call options (= 20 contracts). Both strategies involve an investment of \$9,400. What advice would you give? How high does the stock price have to rise for the option strategy to be more profitable?
- 1.30. Show that the Standard Oil bond described in Section 1.7 is a combination of a regular bond, a long position in call options on oil with a strike price of \$25, and a short position in call options on oil with a strike price of \$40.
- 1.32. A trader owns gold as part of a long-term investment portfolio. The trader can buy gold for \$250 per ounce and sell gold for \$249 per ounce. The trader can borrow funds at 6% per year and invest funds at 5.5% per year. (Both interest rates are expressed with annual compounding.) For what range of one-year forward prices of gold does the trader have no arbitrage opportunities? Assume there is no bid-offer spread for forward prices.
- 1.34. A trader buys a European call option and sells a European put option. The options have the same underlying asset, strike price and maturity. Describe the trader's position. Under what circumstances does the price of the call equal the price of the put?