Problems #1, Math/Econ 337, Dr. M. Bohner.Jan 12, 2009. Due Jan 21, 3 pm.

1. On 19 July 2002 dealer A in New York and dealer B in London used the following rates to change currency, namely euros (EUR), British pounds (GBP), and US dollars (USD):

dealer A	buy	sell
1.000 EUR	1.0202 USD	1.0284 USD
1.000 GBP	1.5718 USD	1.5844 USD

dealer B	buy	sell
1.000 EUR	0.6324 GBP	0.6401 GBP
1.000 USD	0.6299 GBP	0.6375 GBP

   Spot a chance of risk-free profit without initial investment.

2. Suppose that the spot price of oil is \$19, the 1-year forward price of oil is \$25, the 1-year interest rate is 5% pa, and the storage costs of oil are \$2.05 for one year. Is there an arbitrage opportunity?

3. An investor enters into a short forward contract to sell 100,000 GBP for USD at an exchange rate of 1.5000 USD per GBP. How much does the investor gain or lose if the exchange rate at the end of the contract is (a) 1.4900 and (b) 1.5200?

4. A US company expects to have to pay 1 million Canadian dollars in 6 months. Explain how the exchange rate risk can be hedged using (a) a forward contract and (b) an option.

5. Describe the profit from the following portfolio: A long forward contract on an asset and a long European put option on the asset with the same maturity as the forward contract and a strike price that is equal to the forward price of the asset at the time the portfolio is set up.

6. The current price of a stock is \$94, and 3-month European 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?