

Problem 5.26.

In early 2012, the spot exchange rate between the Swiss Franc and U.S. dollar was 1.0404 (\$ per franc). Interest rates in the U.S. and Switzerland were 0.25% and 0% per annum, respectively, with continuous compounding. The three-month forward exchange rate was 1.0300 (\$ per franc). What arbitrage strategy was possible? How does your answer change if the exchange rate is 1.0500 (\$ per franc).

Problem 5.27.

An index is 1,200. The three-month risk-free rate is 3% per annum and the dividend yield over the next three months is 1.2% per annum. The six-month risk-free rate is 3.5% per annum and the dividend yield over the next six months is 1% per annum. Estimate the futures price of the index for three-month and six-month contracts. All interest rates and dividend yields are continuously compounded.

Problem 5.30.

A stock is expected to pay a dividend of \$1 per share in two months and in five months. The stock price is \$50, and the risk-free rate of interest is 8% per annum with continuous compounding for all maturities. An investor has just taken a short position in a six-month forward contract on the stock.

- a) *What are the forward price and the initial value of the forward contract?*
- b) *Three months later, the price of the stock is \$48 and the risk-free rate of interest is still 8% per annum. What are the forward price and the value of the short position in the forward contract?*

Problem 5.15.

The spot price of silver is \$25 per ounce. The storage costs are \$0.24 per ounce per year payable quarterly in advance. Assuming that interest rates are 5% per annum for all maturities, calculate the futures price of silver for delivery in nine months.

Problem 10.9.

Suppose that a European call option to buy a share for \$100.00 costs \$5.00 and is held until maturity. Under what circumstances will the holder of the option make a profit? Under what circumstances will the option be exercised? Draw a diagram illustrating how the profit from a long position in the option depends on the stock price at maturity of the option.

Problem 10.10.

Suppose that a European put option to sell a share for \$60 costs \$8 and is held until maturity. Under what circumstances will the seller of the option (the party with the short position) make a profit? Under what circumstances will the option be exercised? Draw a diagram illustrating how the profit from a short position in the option depends on the stock price at maturity of the option.