33. A 1-year long forward contract on a non-dividend-paying stock is entered into when the stock price is \$40 and $r = 0.1$. What are the forward price and the initial value of the forward contract? And, what are the forward price and the value of the forward contract six months later, when the stock price is \$45 and r is still 10%?
34. Suppose that the price of a stock is \$45 at the beginning of the year, the risk-free rate is 6%, and a \$2 dividend is to be paid after half a year. For a long forward position with delivery in one year, find its value after 9 months if the stock price at that time turns out to be (a) \$49 (b) \$51.
35. What should be the 4-month futures price on a stock index currently standing at 350 (r is 8% and dividend yield on index is 4% per annum)?
36. A US importer of German cars wants to arrange a forward contract to buy euros in half a year. The interest rates for investments in USD and EUR are 4% and 3%, repectively, the current exchange rate being 0.9834 euros to a dollar. What should be the forward price of euros expressed in dollars? Describe arbitrage strategies if the forward price is (a) 1 USD for 1 EUR and (b) 1.1 USD for 1 EUR.
37. The spot price of silver is \$9 per ounce. The storage costs are \$0.24 per ounce per year payable quarterly (6 cents each time) in advance. Assuming that interest rates are 10% per annum for all maturities, calculate the futures price of silver for delivery in 9 months.
38. A bank offers a corporate client a choice between borrowing cash and gold at 11% and 2%, respectively, per annum, with annual compounding. (If gold is borrowed, interest must be repaid in gold. Thus, 100 ounces borrowed today would require 102 ounces to be repaid in 1 year.) The risk-free interest rate and the storage costs are 9.25% and 0.5%, respectively, per annum, with continuous compounding. Discuss whether the rate of interest on the gold loan is too high or too low in relation to the rate of interest on the cash loan.