

7. Suppose the F_i in Ex. 2.2 are given as 140, 137, 131, 129, 135, 145, 138, 148, 150. Make a table as we did in Ex. 2.2 in the lecture notes.
8. An investor enters into two long July futures contracts on orange juice. Each contract is for the delivery of 15,000 pounds. The current futures price is 160 cents per pound, the initial margin is \$6,000 per contract, and the maintenance margin is \$4,500 per contract. What price change would lead to a margin call? Under what circumstances could \$2,000 be withdrawn from the margin account?
9. Suppose that the standard deviation of quarterly changes in the prices of a commodity is \$0.65, the standard deviation of quarterly changes in a futures price on the commodity is \$0.81, and the coefficient of correlation between the two changes is 0.8. What is the optimal hedge ratio for a 3-month contract? What does it mean?
10. A beer producer is committed to buy 200,000 pounds of wheat in one month. The only future available is a contract on 40,000 pounds of wheat with a maturity of two months. The values $\rho = 0.7$, $\sigma_S = 1.2$, and $\sigma_F = 1.4$ are known. Find the optimal hedge ratio and the corresponding number of futures the beer producer takes a long position in.
11. The following table gives data on monthly changes in the spot price and the futures price for a certain commodity. Calculate the minimum variance hedge ratio.

ΔS	0.50	0.61	-0.22	-0.35	0.79	0.04	0.15	0.70	-0.51	-0.41
ΔF	0.56	0.63	-0.12	-0.44	0.60	-0.06	0.01	0.8	-0.56	-0.46