Answer Key Homework #5

CHAPTER 22: Future Markets

(15)7. a) The closing futures price for the June contract was 2555.00, which has a dollar value of:

$$\$50 \times 2555.00 = \$127,750$$

Therefore, the required margin deposit is: $12,775

b) The futures price increases by $2600.00 – 2555.00 = $45.00

The credit to your margin account would be: 45.00 × $50 = $2,250

This is a percent gain of: $2,250/$12,775 = 0.1760 = 17.60%

Note that the futures price itself increased by only 1.76%.

c) Following the reasoning in part (b), any change in F is magnified by a ratio of (l /margin requirement). This is the leverage effect. The return will be –10%.

(15)8. a) F0 = S0(1 + rf) = $150 × 1.03 = $154.50

b) F0 = S0(1 + rf)3 = $150 × 1.033 = $163.91

c) F0 = 150 × 1.063 = $178.65

(5)11. The put-call parity relation states that: But spot-futures parity tells us that:

$$C = P + S_0 - \frac{X}{(1+r_f)^T}; F = S_0 \times (1+r_f)^T$$

Substituting, we find that:

$$P = C - S_0 + \frac{\left[S_0 \times (1+r_f)^T\right]}{(1+r_f)^T} = C - S + S = C$$

(5)16. The parity value of *F* is: $2,000 × (1 + 0.04 – 0.01) = $2,060

The actual futures price is $2,050, too low by 10.

Arbitrage Portfolio	CF now	CF in 1 year
Short index	2,000	$-S_T - (0.01 \times 2,000)$
Buy futures	0	$S_T - 2,050$
Lend	−2,000	2,000× 1.04
Total	0	10

(15)18. a. The current yield for Treasury bonds (coupon divided by price) plays the role of the dividend yields.

b., c. When the yield curve is upward sloping, the current yield exceeds the short rate. Hence, T-bond futures prices on more distant contracts are lower than those on near-term contracts. Confirmed with Figure 22.1