

## CHAPTER 6

### Interest Rate Futures

#### Practice Questions

**Problem 6.1.**

*A U.S. Treasury bond pays a 7% coupon on January 7 and July 7. How much interest accrues per \$100 of principal to the bond holder between July 7, 2011 and August 9, 2011? How would your answer be different if it were a corporate bond?*

**Problem 6.2.**

*It is January 9, 2013. The price of a Treasury bond with a 12% coupon that matures on October 12, 2020, is quoted as 102-07. What is the cash price?*

**Problem 6.4.**

*A Eurodollar futures price changes from 96.76 to 96.82. What is the gain or loss to an investor who is long two contracts?*

**Problem 6.7.**

*It is January 30. You are managing a bond portfolio worth \$6 million. The duration of the portfolio in six months will be 8.2 years. The September Treasury bond futures price is currently 108-15, and the cheapest-to-deliver bond will have a duration of 7.6 years in September. How should you hedge against changes in interest rates over the next six months?*

**Problem 6.9.**

*It is May 5, 2011. The quoted price of a government bond with a 12% coupon that matures on July 27, 2014, is 110-17. What is the cash price?*

**Problem 6.13.**

*Suppose that the nine-month LIBOR interest rate is 8% per annum and the six-month LIBOR interest rate is 7.5% per annum (both with actual/365 and continuous compounding). Estimate the three-month Eurodollar futures price quote for a contract maturing in six months.*

**Problem 6.16.**

*Suppose that it is February 20 and a treasurer realizes that on July 17 the company will have to issue \$5 million of commercial paper with a maturity of 180 days. If the paper were issued today, the company would realize \$4,820,000. (In other words, the company would receive*

*\$4,820,000 for its paper and have to redeem it at \$5,000,000 in 180 days' time.) The September Eurodollar futures price is quoted as 92.00. How should the treasurer hedge the company's exposure?*

**Problem 6.17.**

*On August 1 a portfolio manager has a bond portfolio worth \$10 million. The duration of the portfolio in October will be 7.1 years. The December Treasury bond futures price is currently 91-12 and the cheapest-to-deliver bond will have a duration of 8.8 years at maturity. How should the portfolio manager immunize the portfolio against changes in interest rates over the next two months?*

**Problem 6.18.**

*How can the portfolio manager change the duration of the portfolio to 3.0 years in Problem 6.17?*