

### Intermediate- and Long-Term Interest Rate Hedges

**HEDGING A LONG POSITION IN A GOVERNMENT BOND** Portfolio managers constantly face decisions about when to buy and sell securities. In some cases, such decisions are automatic. Securities are sold at certain times to generate cash for meeting obligations such as pension payments. Consider the following example.

On February 25, a portfolio manager holds \$1 million face value of government bonds with a coupon of 11 7/8 percent and maturing in about 25 years. The bond currently is priced at 101 per \$100 par value, and the yield is 11.74 percent. The duration is 7.83 years. The bond must be sold on March 28.<sup>8</sup>

The portfolio manager is concerned that interest rates will increase, resulting in a lower bond price and the possibility that the proceeds from the bond's sale will be inadequate for meeting the pension obligation. The manager knows that if interest rates increase, a short futures position will yield a profit that can offset at least part of any decrease in the bond's value. Since this is a government bond, the Treasury bond futures contract should be used.<sup>9</sup>

Table 10.9 presents the results of the hedge. The manager will use the June T-bond futures contract. Using the price sensitivity hedge ratio, the manager determines that he should sell 16 contracts. When the bonds were sold on March 28 they generated a loss of over \$53,000. The futures transaction produced a profit of over \$60,000. Thus, the hedge eliminated all of the loss and even produced a gain. Had bond prices moved up, the futures price would have increased and the futures transaction would have generated a loss that would have reduced or perhaps eliminated all of the increase in the value of the bonds.

This short hedge represents one of the most common hedging applications, and we shall see a slight variation of it later when we examine stock index futures hedging. This hedge is applicable to many firms and institutions, such as banks, insurance companies, pension funds, and mutual funds.

**ANTICIPATORY HEDGE OF A FUTURE PURCHASE OF A TREASURY NOTE** Previously we saw how one could hedge the future purchase of a Treasury bill. In this example, we do the same with a Treasury note. We also take a slightly different approach to determining the hedge ratio.

<sup>8</sup>In actual situations a portfolio manager would hold a diversified portfolio of bonds. If the intention were to hedge the entire portfolio, the hedge ratio would be based on the overall portfolio value, yield, and duration. We assume the manager needs approximately \$1 million of cash on March 28 and will sell only this bond to generate the cash.

<sup>9</sup>Technically, the accrued interest would be included here, but it is not subject to any uncertainty and we leave it out of the hedging examples.