

FINC 623/ECON623
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Homework Assignment—Duration-Based Hedging

Assume today is September 15, 2009. You have \$15,000,000 face value of a corporate bond that matures on September 15, 2019. It's price at \$122.88, and has a coupon rate of 9.4%. (Today's coupon was paid moments ago.)

Explain how you would hedge \$15,000,000 in face value of this bond using the March 2010 T-bond futures contract. (Assume that the futures delivers on March 15, 2010) You may ignore any imbedded options and you do not need to estimate the correlation in price movements between the bond and the futures contract.

For simplicity, let us assume that the cheapest-to-deliver bond underlying the futures contract will have the following characteristics at the time of delivery in March 2010: 27.5 years to maturity, a 6 percent coupon, and a yield-to maturity of 4.25%.

1. What is the YTM for the corporate bond?
2. As of September 15, 2009, what is the best estimate of the price of the cheapest-to-delivery bond that will prevail on March 15, 2010?
3. What is the duration of each bond (predicted to prevail on March 15, 2010)?
4. What risk-minimizing duration-based hedge would you implement (instrument, long/short, expiration date, number of contracts)?

Present your answer for 1-3 in a table like this one:

Bond	YTM	Bond Price	Duration
Cheapest-to-Deliver	X	1.28223	
Corporate		X	

5. Evaluate the effectiveness of the hedge. Assume with the hedge in place that interest rates on both instruments rise by 2%. What are the two new bond prices? What is the net gain or loss from the interest rate change?