

Fixed Income
Additional Problem set on Inverse Floaters, Swaps.

Short Answer questions. Be concise, precise and direct.

The yield curve is flat at 4% continuously compounded. Our city treasury lost \$70 million on a portfolio that had been worth \$1.2 billion, after interest rates jumped from 4 to 4.4% (a flat yield curve, continuously compounded). The Treasury had just bought 2 positions. (Assume that it entered the positions yesterday when the yield curve was flat at 4%.) The first is a 5-year inverse floater with annual fixed and floating payments, annual resets and tenor for the floating side, and annual payments on the fixed side. The coupon is the same as the market swap rate.

The second asset in the portfolio is a 5-year leveraged inverse floater with annual fixed and floating payments, annual resets and tenor for the floating side, and annual payments on the fixed side. The coupon is three times the market swap rate, and the floating payment is 3 times the 1-year rate, (at the beginning of the tenor period).

1. What is the value of this inverse floater?
2. What is the duration of this inverse floater?
3. Contrast this inverse floater to a 5-year, receive fixed, pay floating swap with interest rate terms the same as the inverse floater.
 - (a) What is the value of this swap?
 - (b) What is the DV01 of this swap?
 - (c) Contrast the riskiness of this swap with the inverse floater, and explain the difference.
4. What is the value of this leveraged inverse floater?
5. What is the duration of this leveraged inverse floater?
6. Our city treasury lost \$70 million on a \$1.25 billion portfolio after interest rates jumped from 4% to 4.4%. It owned only these 2 assets. How much did it have invested in each?