

Assignment 1: Answers

(September 24, 1998)

1. Treasuries ...

	Maturity (Yrs)	Disc Factor	Spot Rate (%)	Forward Rate (%)
(a,b)	0.5	0.9756	5.001	5.001
	1.0	0.9246	8.000	11.043
	1.5	0.8763	9.000	11.015

By way of example, the first discount factor is $d_1 = 98.536/101$ (a claim to 101 in one period costs 98.536).

- (c) Use the par yield formula: 7.941%.
- (d) The idea is to find quantities of A and B that have the same cash flows as a two-period zero:

$$\begin{aligned} 0 &= x_A \times 101 + x_B \times 2 \\ 100 &= x_B \times 102. \end{aligned}$$

The answer is $x_A = -0.019$ (a short position) and $x_B = 0.980$. What this means is that you buy a little less than one unit of B (since the second-period cash flow of 102 is more than 100), and short enough of A to offset the first-period coupon.

- (e) Yield-to-maturity: 5.001 for A, 7.969 for B, and 8.938 for C (all %)
2. Disney (annual coupon and compounding): $n = 2$, (a) $u = 70$, (b) Accrued Interest = 1.677, (c) Invoice Price = 109.344, and (d) Yield = 4.116%.
3. Wal-Mart (traditional semi-annual US corporate): $n = 51$, (a) $u = 136$, (b) Accrued Interest = 2.550, (c) Invoice Price = 109.102, and (d) Yield = 6.230%.
4. Mexico (a eurobond with semi-annual payments): $n = 56$, (a) $u = 108$, (b) Accrued Interest = 3.450, (c) Invoice Price = 92.044, and (d) Yield = 13.026%. Note that Mexican debt (rated Ba2) sells at a steep discount (higher yield) to comparable Wal-Mart debt (rated Aa2).