

EC3333 Tutorial 7

1. The following table shows the yields to maturity of zero-coupon Treasury securities.

Term to Maturity (years)	Yield to Maturity (%)
1	3.5
2	4.5
3	5.0
4	5.5
5	6.0

- Calculate the forward 1-year rate for year 2, 3, 4, and 5 respectively.
 - Describe the conditions under which the calculated forward 1-year rate would be an unbiased estimate of the 1-year spot rate of interest for that year.
 - Assume that the conditions in part b hold, what does the yield curve here imply?
 - Assume that a few months earlier, the forward 1-year rate of interest for that year had been significantly higher than it is now. What factors could account for the decline in the forward rate?
2. A 9-year bond paying coupons annually has a yield to maturity of 10% and a duration of 7.194 years. If the market yield increases by 50 basis points (0.50%), what is the percentage change in the bond price?
3. Find the duration of a 6% coupon bond making *annual* coupon payments if it has 3 years until maturity and has a yield to maturity of 6%. What is the duration if the yield to maturity is 10%?
4. Assume there are four default-free bonds with the following prices and future cash flows:

Bond	Price Today	Cash Flows		
		Year 1	Year 2	Year 3
A	\$934.58	1000	0	0
B	881.66	0	1000	0
C	1,118.21	100	100	1100
D	839.62	0	0	1000

Do these bonds present an arbitrage opportunity? If so, how would you take advantage of this opportunity? If not, why not?