

**Finance 462**  
**Practice Exam #2**

- 1) Consider a 3 year Treasury note. This bond has a face value of \$10,000 and a coupon rate of 5%. For simplicity, assume that the interest payments are made annually. Further, the current yield curve is as follows:

<b>Term</b>	<b>Annual Rate</b>
1yr	6%
2yr	5%
3yr	4%

- a) Calculate the price of the bond.
- b) Calculate the duration of the bond (Modified duration)
- c) Using part (b), what would be the impact of a 50 basis point parallel shift up of the yield curve?
- d) Calculate the actual percentage change in the bond's price. Why is your answer different from (c)?
- e) Calculate the bond's key durations (there are three of them).
- f) Use your answer to (e) to estimate the impact of the bond's price given the following yield curve shift.

<b>Term</b>	<b>Annual Rate</b>
1yr	5%
2yr	5%
3yr	5%

- 2) Suppose you have a 3 year corporate bond. The face value is \$10,000 and the annual coupon rate is 5%. The bond is callable at 5% (if interest rates fall below 5%, the loan is repaid). The current yield curve is as follows:

<b>Term</b>	<b>Annual Rate</b>
1yr	6%
2yr	5%
3yr	4%

- a) Given the above data, calculate the change in the bond's price for a decrease in interest rates of 50 basis points across the board.
- b) Calculate the bond's price given a 50 basis point increase in interest rates.
- c) What is the bond's effective duration?
- d) Why is effective duration different from modified duration for callable bonds?

- 3) Consider a Treasury bill future with an expiration date 1 year from now. The current yield curve is as follows:

<b>Term</b>	<b>Annual Rate</b>
1yr	3%
2yr	5%
3yr	6%

- a) What is the zero-arbitrage price of this future?.
- b) If the current market price was 94, how could you make money?
- c) Suppose you were holding 10 of the Three Year Treasury notes from (1). How would you hedge this risk (i.e. how many contracts would you need to buy?)