

- 1) Suppose you buy a 7% coupon, 20-years bond today when it's first issued. If interest rates suddenly rise to 15% what happens to the value of the bond? Why?
- 2) The petit chef company has 7% coupon bonds on the market with nine years left to maturity. The bonds make an annual payment and have the par values of \$1000. If the bonds currently sell for \$1038.50, what is the yield to maturity?
- 3) If Treasury bills are currently paying 4.7% and the inflation rate is 1.9% what is the approximate real rate of interest? What is the exact real rate?
- 4) Using information in the figure below (on the next page) a Treasury bond maturing in May of 2037. Does the bond sell at a premium or a discount? What is the current yield? What is the yield to maturity? What is the bid ask spread for \$1000 par value bond?
- 5) You find a zero coupon bond with the par value of \$10,000 and 13 years to maturity. If the yield to maturity on this bond is 4.7% , what is the price of the bond? Assume semiannual compounding periods
- 6) Bond X is a premium bond making semi annual payments. The bond has a coupon of 7.5%, or go to maturity of 6%, and 13 years to maturity. Bond why is a discount bond making semi annual payments. The bond has a coupon rate of 6%, a yield to maturity of 7.5%, and also 13 years to maturity. What are the prices of these bonds today assuming both bonds have \$1000 par value? If the interest rate remains unchanged, what do you expect the price of these bonds to be in one year? In three years? In eight years? In 12 years? In 13 years? What's going on here? Illustrate your answer by graphing the bond prices versus time to maturity.
- 7) Both bond X and bond Y have 5.8% coupons, make semi annual payments, and are priced at par value. Bond X has five years to maturity, whereas Bon Y has 25 years to maturity. If interest rates suddenly rise by 2% , what is the percentage change in the price of bond X? Of bond Y? Both bonds have a par value of \$1000. If rates were suddenly to fall by 2% instead , what would the percentage change in the price of bond X be then? Of bond Y? Illustrate your answer by graphing the bond prices versus yield to maturity. What does this problem tell you about interest rate risk of longer term bonds?
- 8) Bond J has a coupon rate of 4%. Bond K has a coupon rate of 14%. Both bonds have 17 years to maturity, a par value of \$1000 and a yield to maturity of 8% , and both make semi annual payments. If interest rates suddenly rise by 2%, what is the percentage price change in these bonds? What if rates suddenly fall by 2% instead? What does this problem tell you about interest rate risk of lower coupon bonds?

Maturity	Coupon	Bid	Asked	Chg	Asked Yield
1/31/2019	1.500	99.5469	99.5625	-0.0078	2.205
12/31/2021	2.125	97.8906	97.9063	0.0703	2.749
1/31/2022	1.500	95.6563	95.6719	0.0547	2.762
2/28/2023	2.625	99.2109	99.2266	0.1172	2.801
9/30/2023	1.375	92.7969	92.8125	0.1172	2.847
2/29/2024	2.125	96.1172	96.1328	0.1484	2.864
7/31/2024	2.125	95.7344	95.7500	0.1172	2.887
1/31/2025	2.500	97.6328	97.6484	0.1953	2.892
4/30/2025	2.875	99.8359	99.8516	0.2109	2.899
11/15/2026	6.500	126.6406	126.6563	0.3125	2.906
2/15/2029	5.250	120.9453	121.0078	0.4063	2.941
5/15/2030	6.250	132.8984	132.9609	0.4688	2.949
2/15/2036	4.500	120.9375	121.0000	0.5625	2.964
5/15/2037	5.000	129.0938	129.1563	0.6641	2.973
11/15/2039	4.375	121.3047	121.3672	0.6953	3.014
5/15/2040	4.375	121.5313	121.5938	0.7500	3.021
8/15/2041	3.750	111.6875	111.7500	0.7500	3.040
5/15/2042	3.000	99.1875	99.2188	0.7266	3.046
2/15/2043	3.125	101.1641	101.1953	0.7344	3.056
2/15/2044	3.625	110.0313	110.0625	0.6875	3.056
8/15/2046	2.250	84.6797	84.7109	0.6016	3.064
5/15/2047	3.000	98.7578	98.7891	0.6953	3.063
5/15/2048	3.125	101.1875	101.2188	0.7422	3.062