SOLUTION

You are given the following data on two bonds:

- Bond #1 $100 par of a .5-year zero has a price of $97.50
- Bond #2 $100 par of a 1-year 5% coupon bond has a price of $99.00

b) Calculate the 6-month spot rate of interest.

$r_{0.5}=5.128\%$
$r_1=6.057\%$

c) What is the price of $1 par of a 1-year zero?

$d_{0.5}=0.9750$
$d_1=0.94207$

d) What is the 1-year par rate, i.e., what coupon rate would make the price of a 1-year coupon bond equal to par?

$C=2*(1-d_1)/(d_{0.5}+d_1)=6.043\%$

e) Explain briefly (and intuitively) the following two facts:

(iii) The 1-year par rate lie either below or above (whatever you find) the 1-year spot rate in your answer to (b) and (c) above?

The par rate is below the one year zero rate because the half year zero rate is below the one year zero rate (upward sloping zero curve)

(iv) Why the 1-year par rate is closer to the 1-year spot rate than the 6-month spot rate in magnitude than the 6-month spot rate?

The par rate is closer to the 1 year zero rate because most of the cash flow to the par bond occur in period one.