FIN 332

Activity 6.3

Mr. Sharif A. is planning to purchase a zero coupon bond. All bonds are compounded semiannually. Currently the yield curve looks as in table 6.3-1 below:

|  |  |  |
| --- | --- | --- |
| Bond | duration (years) | yield to maturity |
| Today |
| 1 | 2 | 4.65% |
| 2 | 5 | 4.45% |
| 3 | 10 | 4.50% |
| 4 | 30 | 4.65% |

Table 6.3-1

Mr. Sharif estimates that the yield curve will shift up by 15 bps in 1 month as in graph below.

Graph (for fun):

Mr. Sharif must buy a bond that loses him the least money (i.e. has least duration risk). Based on the above information, please fill out the Excel file to determine:

a. Price today

b. Price in 1 month

c. capital gain (loss)

d. rate of return

STEP 1: fill out cell C1 with basis point change from today to 1 month (15 bps)

STEP 2: enter the duration and YTM in cells A3:B6 from table 6.3-1 above

STEP 3: calculate the expected yield in 1 month in column C

STEP 4: calculate the difference change in YTM from 1 month over today

STEP 5: Calculate price today using TVM equation

STEP 6: Calculate the expected price in 1 month using TVM equation

STEP 7: Calculate the expected capital gain/ loss based on price change

STEP 8: Calculate the rate of return using capital gain/ loss (remember there is no coupon – so no current yield)

STEP 9: based on step 8, which is the most risky bond and which is the least risky bond