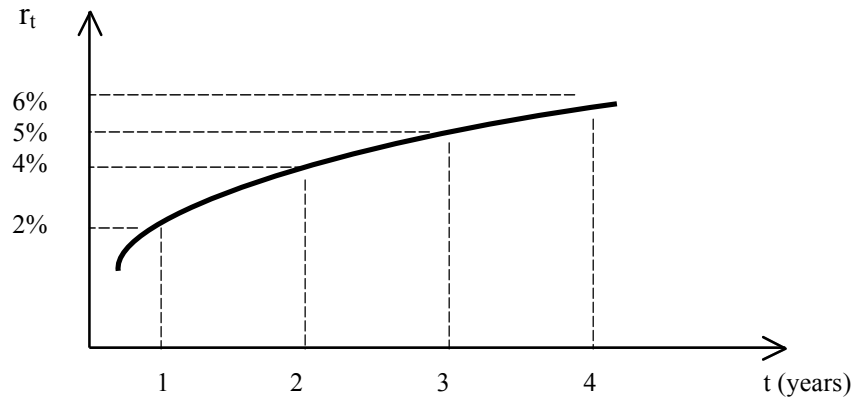
HEC Paris **Financial Markets** **Quiz 2**
Fall 2014

LAST NAME _____ FIRST NAME _____

Consider the following yield curve (as of date t=0), which is based on government-issued default-risk-free zero-coupon bonds:



Answer the questions below based on the yield curve above knowing that all bonds in this economy have a par (face, nominal) value of 100 €:

1) What is the price today (at t=0) of a government-issued zero-coupon bond that will mature in 2 years from now?

- ❒ 98.04 €
- ❒ 96.15 €
- ❒ 92.46 €
- ❒ 86.38 €
- ❒ 79.21 €

2) Price at t=0 of a government-issued zero-coupon bond with 18-months (1.5 years) until maturity is equal to 95.66 €. What is the yield-to-maturity on this bond?

- ❒ 2.50%
- ❒ 2.75%
- ❒ 3.00%
- ❒ 3.25%
- ❒ 3.50%

3) Now consider the annual coupon-paying government bond A with a maturity of 1-year that is also exactly 1-year away from the next coupon payment. If bond A has a coupon rate of 3% then at date t=0 it must be selling at …

- ❒ a discount
- ❒ par (face) value
- ❒ a premium

4) If at t=0 you buy the coupon-paying government bond A described above and hold it until its maturity date, then at t=1 (in the absence of transaction costs) you would earn a realized rate of return of …

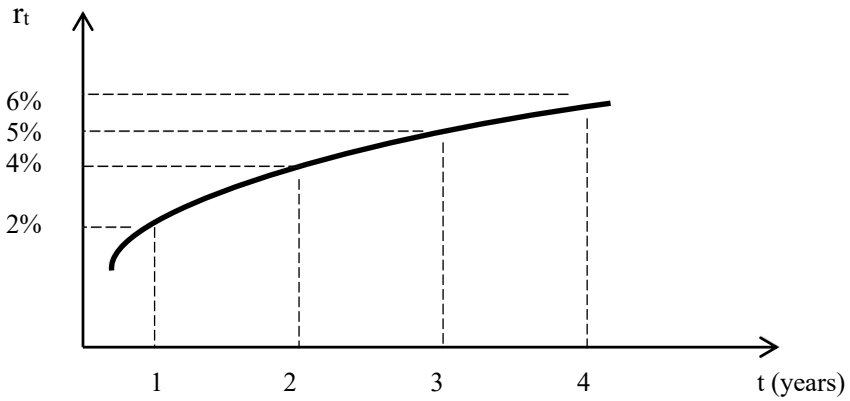
- ❒ < 1%
- ❒ 1%
- ❒ 2%
- ❒ 3%
- ❒ > 3%

5) If, all of a sudden, at date t=0 the yield curve above makes a parallel upward move of 1% (i.e., all interest rates increase by 1%), then t=0 prices of …

- ❒ all bonds decrease
- ❒ only zeros decrease
- ❒ only A decreases
- ❒ bonds not affected
- ❒ only A increases
- ❒ only zeros increase
- ❒ all bonds increase

HEC Paris **Financial Markets** **Quiz 2** **A**
Fall 2014 **SOLUTION**

Consider the following yield curve (as of date t=0), which is based on government-issued default-risk-free zero-coupon bonds:



Answer the questions below based on the yield curve above knowing that all bonds in this economy have a par (face, nominal) value of 100 €:

1) What is the price today (at t=0) of a government-issued zero-coupon bond that will mature in 2 years from now?

$P_0^{2\text{-yr zero}} = 100/1.04^2 = 92.42$

- ❒ 98.04 €
- ❒ 96.15 €
- ☑ **92.46 €**
- ❒ 86.38 €
- ❒ 79.21 €

2) Price at t=0 of a government-issued zero-coupon bond with 18-months (1.5 years) until maturity is equal to 95.66 €. What is the yield-to-maturity on this bond?

$P_0^{1.5\text{-yr zero}} = 100/(1+r_{1.5})^{1.5}$

➔ $r_{1.5} = (100/95.66)^{1/1.5} - 1 = 0.0300 = 3.00\%$

- ❒ 2.50%
- ❒ 2.75%
- ☑ **3.00%**
- ❒ 3.25%
- ❒ 3.50%

3) Now consider the annual coupon-paying government bond A with a maturity of 1-year that is also exactly 1-year away from the next coupon payment. If bond A has a coupon rate of 3% then at date t=0 it must be selling at …

no need for calculation: $c > r_1$ ➔ at a premium
[alternatively: $P_0^A = (3+100) / (1+0.02) = 100.98 > 100$]

- ❒ a discount
- ❒ par (face) value
- ☑ **a premium**

4) If at t=0 you buy the coupon-paying government bond A described above and hold it until its maturity date, then at t=1 (in the absence of transaction costs) you would earn a realized rate of return of …

no need for calculation: bond A acts as a zero-coupon bond, must earn r_1
[alternatively: realized return = (103–100.98)/100.98 = 0.0200 = 2.00%]

- ❒ < 1%
- ❒ 1%
- ☑ **2%**
- ❒ 3%
- ❒ > 3%

5) If, all of a sudden, at date t=0 the yield curve above makes a parallel upward move of 1% (i.e., all interest rates increase by 1%), then t=0 prices of …

- ☑ **all bonds decrease**
- ❒ only zeros decrease
- ❒ only A decreases
- ❒ bonds not affected
- ❒ only A increases
- ❒ only zeros increase
- ❒ all bonds increase