

EXAM FM QUESTIONS OF THE WEEK

S. Broverman, 2007

Week of March 19/07

A 10 year bond with annual coupons at rate 2% has an annual effective yield rate of 6%.
An 11 year bond with annual coupons at rate $r\%$ also has an annual effective yield rate of 6%.
Both bonds have face amount and redemption amount of 100. The two bonds have the same
Macaulay duration. Calculate r .

- A) Less than 2% B) At least 2% but less than 2.5% C) At least 2.5% but less than 3%
D) At least 3% but less than 3.5% E) At least 3.5%

The solution can be found below.

Week of March 19/07 - Solution

$$D_1 = \frac{2(Ia)_{\overline{10}|.06} + 1000v_{.06}^{10}}{2a_{\overline{10}|.06} + 100v_{.06}^{10}} = \frac{632.319593}{70.559652} = 8.96 .$$

$$D_2 = \frac{r(Ia)_{\overline{11}|.06} + 1100v_{.06}^{11}}{ra_{\overline{11}|.06} + 100v_{.06}^{11}} = \frac{42.757071r + 579.466278}{7.886875r + 52.678753} = 8.96$$

Solving for r results in $r = .0385$. Answer: E