

EXAM FM QUESTIONS OF THE WEEK

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Week of September 10/07

A 10 year bond has semi-annual coupons. The coupon rate is 5% for the first 5 years and 9% for the following 5 years. The bond has face amount of 100 and a redemption amount of 105. 6 months before the first coupon, the bond is purchased for 100. Find the nominal annual yield rate compounded semiannually.

The solution can be found below.

Week of September 10/07 - Solution

Suppose that the 6-month yield rate is j .

$$\text{Then } 100 = 2.5a_{\overline{10}|j} + 4.5v_j^{10} \cdot a_{\overline{10}|j} + 105v_j^{20} = 2.5a_{\overline{10}|j} + 4.5v_j^{10} \cdot a_{\overline{9}|j} + 109.5v^{20}$$

The reason for writing the second form, is that it allows us to use the BA II PLUS cashflow worksheet to solve for j . In the cashflow worksheet, we enter

$CF0 = -100$, $C01 = 2.5$, $F01 = 10$, $C02 = 4.5$, $F02 = 9$, $C03 = 109.5$, $F03 = 1$, and all other C 's are 0. Then, when we compute IRR , we get the value of j which satisfies the equation above. WE get $j = 3.506\%$. This is the 6-month yield rate, so the nominal annual yield rate compounded semiannually is 7.01%.