

EXAM FM QUESTIONS OF THE WEEK

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Week of February 18/08

A corporation issues two separate 30 year callable bonds. Both bonds have annual coupons and are priced at the same annual effective yield rate j

Both bonds are callable at par anytime starting at the time of the n -th coupon up to the 30th coupon. The bonds are priced per 100 of face amount.

Bond A has a coupon rate of 8% and has a price of 125.57.

Bond B has a coupon rate of 5% and has a price of 86.24.

Find j and n .

The solution can be found below.

Week of February 18/08 - Solution

We will denote the

Since Bond A is priced at a premium, the price is based on the earliest call date, which is time n .

Therefore, we get

$$125.57 = 100 + 100(.08 - j)a_{\overline{n}|j}.$$

Since Bond B is priced at a discount, the price is based on the latest call date, which is time 30.

Therefore, we get

$$86.24 = 100v_j^{30} + 5a_{\overline{30}|j}.$$

Using the unknown interest rate function on the calculator, we get $j = .0600$.

Then from $125.57 = 100 + 100(.08 - .06)a_{\overline{n}|.06}$

we get $a_{\overline{n}|.06} = 12.785$, and $n = 25$.