8 Problem Set 5.ii

Bonds

Problem 1

Determine the price of a Treasury bond with a nominal value of 1000€ (and cero coupon) which will be amortized with a 25% premium in 5 years' time. We know that the riskless return for 5 year investments is 6%.

Problem 2

What is the yield of a bond with a nominal value of 1000€, a 2 year maturity, and an annual coupon of 4%? Assume that there is an upward sloping term structure of interest rates with the one year spot rate at 3.5% and the two year spot rate at 4.5%. [Do with Spreadsheet–TIR function]

Problem 3

Suppose a bond with a nominal value of 1000€ and a 5 year maturity pays a semester coupon of 8% (nominal) per year. If you know that the return on similar alternative investments is 8% (effective), determine the price of this bond. What would the market required return have to be in order for this bond to have a price of 1000€?

Problem 4

Suppose that a bond with a nominal value of 1000€ and a 5 year maturity pays a semester coupon of 8% (nominal) per year. The term structure of interest rates tells you that the current spot return for each of the next three years is 4% and the forward return for years 4 and 5 is 5% annual. Determine the price of this bond.

Problem 5

Suppose that a bond with a nominal value of 1000€ and a 5 year maturity pays a yearly coupon. This coupon changes with inflation. For the first year the coupon is 2% and then grows with inflation. Suppose that inflation is expected to be constant and equal to 3% per year. The amortization cash value of the bond is not affected by inflation.The return required for this type of investments is 5% per year. What would be the price of this bond?

Past Exam Questions

Problem 6 (EX 2014)

The Ibertax corporation has issued 1000 corporate bonds (pagarés) due in 6 months. The nominal value of each of those bonds is 6000€ and offer a (official) return of 4.5%. The costs from advertising and promoting the bond issue are 50000€ and the costs paid to the banks to place the bond issue are 0.50% of the nominal value of the bonds (paid the day of issue/sale). Determine the real effective APR the corporation is paying on the bond issue.

Problem 7 (EX 2013)

Consider a Obligación del Tesoro issued with a 5 year maturity, a 6% annual coupon, a nominal value of 1000€, amortization at par and official return: 4% annual.

1. Determine the price
2. Determine the price if amortization is not at par, but rather with a 25% premium
3. Determine the price with amortization at par but with coupon payments that start at 4% and increase each year with inflation (assume 2% per year inflation)

Problem 8 (EX 2018)

Determine the price of the following two bonds:

1. Nominal value: 6000€, 4% annual coupon, maturity 12 years, amortization at par, yield 5%
2. Nominal value: 30000€, 5% annual coupon, maturity 16 years, amortization with a 50% premium, yield 4%