Exercises – Week #38

Introduction to Financial Engineering

Note: You may choose to work in R or Matlab. Sometimes solutions will be available in one language, sometimes in both.

1. (yields, cash flows, clean and dirty prices) Go to the Danish stock exchange's home page `http://www.nasdaqomxnordic.com/bonds/denmark`. Pick all the Danish government bullet loans ("stående obligationer") – exclude the ones from Faroe Islands and the SKBVs ("Skatkammerbeviser"). (For simplicity you may assume that the maturity date for "7 St.l 24 GB" to be "2024-11-15")

   (a) Set up the cash flow for each bond

   (b) Calculate the yield to maturity (YtM) for each bond. Note: Use the correct price (clean/dirty) for calculating YtM.

   (c) Plot the bonds' yields for each maturity a function of time to maturity. Do they look as you would expect? Why/why not?

   Hint: In R, you may find uniroot() and difftime() useful. In Matlab, similar functions are called fzero() and yearfrac(). In Matlab, there are build-in functions to calculate YtM. Try to code it yourself and compare with results from "yldmat()" or "cfyield()".