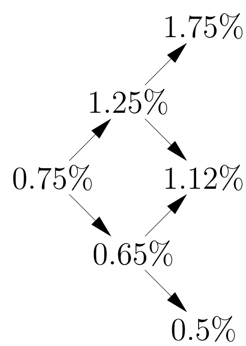
Problemset 6 - Fixed Income

From the 2013 Final exam:
The following tree describes the possible spot rates over the next year.



The risk-neutral probabilities are 50/50.

a) Compute the value of 6,12 and 18m zero coupon bonds in the tree.

b) Find the 1.5 and 1 year swap rates.

c) Price a 1.5 year coupon bond with a coupon equal to the 1.5 year swap rate.

d) Use the discount function to show that the value of the bond at time 0 is the same as what you found in c).

e) Suppose the bond in c) is callable anytime. Compute its value.

f) You enter a 1.5 year swap to pay fixed and also a 1 year swap to recieve fixed. Assume that rates go up in the first 6m, to 1.25%. Without doing any computation, do you think your swap position will make or lose money?

g) Compute the return to the swap position in f) numerically.