

FINM3405 Derivatives and risk management

Tutorial Sheet 10: FRN and interest rate swaps

October 6, 2024

Question 1. Explain in words how you would use fixed-for-floating swaps to:

1. Speculate on shifts in the yield curve.
2. Hedge fixed and floating borrowing exposures to shifts in the yield curve.

Question 2. Consider the following Term SOFR rates:

CME TERM SOFR (%)			
1 MONTH	3 MONTH	6 MONTH	12 MONTH
4.84558	4.58398	4.28099	3.86582

Suppose the 9-month Term SOFR is an average of the 6-month and 12-month rates: $r_9 = 4.07341\%$.

1. What is the theoretically correct fixed rate k on a 1-year fixed-for-floating interest rate swap whose floating rate is Term SOFR plus 50 basis points over a notional principal of $F = \$10\text{m}$ and with quarterly coupon dates?
2. If the Term SOFR yield curve fell by 75 basis points during the 1st quarter, what is the value of the swap to both parties on the 1st coupon date?
3. Following on from question 2, if you originally raised funds in capital markets at a fixed interest rate of $r = 5\%$ and entered into the swap as the floating rate payer, when standing at the end of the 1st quarter, what is your new calculated total interest payment due at the end of the 2nd quarter, and your remaining expected total interest payments?

Question 3. 1. Show how a fixed-for-floating interest rate swap can be viewed as a sequence of FRA maturing on each coupon date.

2. Vice versa, show how a FRA can be viewed as an interest rate swap with a single coupon or interest payment date.