

mini homework (paper submission only)

1a. Given the following yield curve, use the example in the lecture notes and compute the discount factors and forward rates:

spot (zero)	
	y_{0i}
1	0.04
2	0.05
3	0.055
4	0.058

Given a set of 1-year forward rates below, compute the yield curve and the discount factor curve:

1y fwd rate	
	f_{0ij}
1	
2	0.06
3	0.065
4	0.067

Given a discount factor curve (known as P curve):

disc fact	
	y_{0i}
1	0.95
2	0.90
3	0.85
4	0.80

due 1/22

2a. Get on-the-run CMT rates and bootstrap out the discount factors (and discount rates) – assume piece-wise flat. The key CMT rates can be found on line, on the Bloomberg machine, and St. Louis Fed website:

<https://fred.stlouisfed.org/searchresults/?st=interest%20rate&isTst=1>

2b. Use hypothetical 11 key forward rates and perform a quadratic spline curve fitting.

due 2/4

3. Collect LIBOR rates (up to a year), ED futures (1~4 years), and IRS (4~30 years) and construct/cook a LIBOR curve.

due 2/11

4a.

i) find FX curve (usually this is in basis – to be added to the current FX rate)

ii) find domestic Treasury curve (annual tenors)

iii) find foreign (e.g. EURIBOR € or SONIA £) curve

Perform a 5-year (or any tenor) floating-floating FX swap, like the example in text.

4b. Collect FX option quotes from Bloomberg as described in Lecture Notes 6.6.1. Then calculate each option's strike price and premium. [5 deltas \times call/put]. Note that there is a typo: $\Delta_C - \Delta_P = 1$ (not "+").

due 3/25

5. CTD

Pick a futures price (e.g. June futures) and use the equation on page 198 (unnumbered) to find the cheapest-to-deliver bond (i.e. the bond that maximizes the delivery profit π). Note that to compute the conversion factor of each bond, use the three rules at the bottom of page 192. Note that only bonds with at least 15 years to maturity or first call from the settlement date (which is the last day of the settlement month) are eligible. [Please find the futures price and all bond prices (both of which are clean prices) from BB.]

due 4/8